THE

RETROSPECT OF MEDICINE:

BEING

A HALF-YEARLY JOURNAL,

CONTAINING A RETROSPECTIVE VIEW OF EVERY DISCOVERY AND PRACTICAL IMPROVEMENT IN THE MEDICAL SCIENCES

EDITED BY

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ETC.

LONDON:

SIMPKIN, MARSHALL, AND CO.

EDINBURGH: OLIVER AND BOYD. DUBLIN: HODGES AND SMITH.

MDCCCLVIII.

E. I. ROEBUCK, PRINTER, 14, TRINITY STREET, LEEDS.



SURGERY.

AFFECTIONS OF THE BONES AND JOINTS, &c.

ORGANS OF CIRCULATION.

ORGANS OF RESPIRATION.

ALIMENTARY CANAL.

ORGANS OF URINE AND GENERATION.

DISEASES OF THE SKIN.

SYPHILITIC DISEASES.

DISEASES OF THE EYE AND EAR.

MIDWIFERY,

AND THE DISEASES OF WOMEN.

MISCELLANEOUS SUBJECTS.

INDEX.

A SYNOPSIS,

CONTAINING A SHORT ABSTRACT OF THE MOST PRACTICAL ARTICLES IN THE FOLLOWING PAGES' SHOWING, AT A GLANCE, THE MOST IMPORTANT INDICATIONS OF TREATMENT PUBLISHED BY DIFFERENT WRITERS WITHIN THE LAST HALF-YEAR. (ARRANGED ALPHABETICALLY.)

DISEASES AFFECTING THE SYSTEM GENERALLY.

ACUTE RHEUMATISM.—After having procured free evacuation by means of senna and salts, begin the administration of equal parts of vin. colch. and spt. tereb., in doses of ten drops every two or three hours. After a day or two, give in connexion with these (only at different intervals, say of five hours each), tr. ferri. chlor. ten drops, using as much opium as may be necessary to quiet pain. Allow a free use of coffee of average strength. If the patient's appetite remain, allow a moderate use of his usual food at the customary intervals. (Dr. Gordon, p. 8.)

In acute articular rheumatism give large doses of iodide of potassium in conjunction with morphia. When more than one joint is affected do not use local means. (Dr. Hauschka, p. 8.)

Never bleed with the intention of diminishing the fibrine in the blood, for this constituent is only in excess from the other parts being wasted, or burned off as it were; it is an effect, and not a cause. Mercury should be avoided. Give lime juice ad libitum; apply leeches to the fingers, wrists, or ankles, if there is much local inflammation; and it will be a rare thing to have the convalescence prolonged above a fortnight. (Dr. Inman, *Liverpool Med. Jour., Jan.* 1858, *p.* 15.)

CANCER.—A very handy and efficient caustic for the removal of cancerous tumours is powdered sulphate of zinc, moistened with concentrated sulphuric acid, and applied as a paste. The resulting cicatrice is soft and good. (Mr. H. Thompson, p. 372.)

Generally the knife should be preferred to escharotics for the removal of cancerous tumours. Escharotics are most applicable when the disease is superficial; they should be employed of sufficient strength to destroy the whole morbid part by one application, if possible, since by tampering with them much irritation and rapid increase of the disease is caused. Of all escharotics the best is sulphuric acid, made into a paste with fine sawdust. The parts round should be protected by being coated with a solution of gutta

percha in chloroform. and a thick piece, with a central aperture to fit the tumour, should also be closely applied. being first softened by heat. A thin piece may now be glued round the edge of the opening, so that when supported by a stuffing of lint it may form a wall enclosing the diseased part. (Professor Syme, p. 15.)

In a case detailed to illustrate the mode of removal of cancerous growths by congelation, the following was the mode of procedure:—The tumour (in the right breast) was congealed for two hours by a frigorific mixture, at a temperature ranging from 8 to 12 degrees below zero, Fahr. This mixture, which was frequently renewed, was confined to the part by a cup or broad flat ring of gutta percha, having a short flexible tube, closed by a stop-cock issuing from its lower border. Immediately after removing the mixture, nitric acid was applied to the skin, and after the acid, a thin layer of chloride of zinc paste was placed on it and allowed to remain until the next day. There was no pain caused by these proceedings beyond a sensation of tingling on the application of the cold. The caustic was daily inserted, (incisions having been made through the slough) yet the patient's general health remained undisturbed till she left the hospital. By this mode of removal, all shock or excessive inflammation are entirely avoided, besides the absence of pain. (Dr. J. Arnott, p. 17.)

Of the Tongue.—In a case which lately occurred at the Cancer Hospital, where the tongue was much enlarged, of an irregular mottled colour, with purplish discolorations here and there, and superficially ulcerated in two or three places, by means of careful attention to diet and the use of tonic remedies, together with the local application of powdered sulphate of copper, and the occasional use of a mild borax lotion, not only have the ulcers all healed, but the tongue is greatly reduced in size. (Dr. Marsden, p. 19.)

GOITRE.—Dr. Mouat, of Bengal, states that upwards of 60,000 cases of goitre have been treated in that country on the following plan, which generally effects a cure at once, if not, a second repetition next year suffices:—Melt 3lbs. of lard or mutton suet, strain and clean; when nearly cool, add 9 drachms of biniodide of mercury, taking care to make the powder fine by trituration in a mortar. Work in a mortar until no grains of red are apparent in the ointment, and put in pots for use, taking care always to keep both powder and ointment from the rays of light. Use as follows:—About an hour after sunrise apply the ointment to the goitre with a spatula made of ivory, or thin, broad, smooth bamboo, quantity according to size of tumour—rub it well in for at least ten minutes. Let the patient then sit with his goitre held well up to the sun, and let him remain so, as long as he can endure it. It is probable that about noon he will suffer severe pain from the blistering effect of the ointment, although no pustules are raised on the skin. About

2 p.m., the ointment should again be applied with a very careful and tender hand, and the patient should be dispatched to his home with orders not to touch the ointment on any account with the hand, but to allow it to be gradually absorbed, which absorption will be complete on the third day. (p. 370.)

Low Fever.—The blood of low fever more nearly resembles that of scurvy and purpura than that of any other disease. There is the same excess of black blood-discs, the same deficiency of neutral salts and organizable lymph. As in scurvy, so in low fever, great benefit will be derived from the use of acids—muriatic acid being that least foreign to the system should be preferred. Give this acid, diluted with water, freely to the patient, promoting the action of the skin by tepid sponging. We must not expect this or any other treatment to cut short the disease, only to promote and hasten a favourable termination. (Dr. T. K. Chambers, p. 1.)

Scurvy.—Chlorate of potash has the effect of curing the spongy state the gums in this disease much more rapidly than any other treatment. It should be combined with lime-juice. This salt appears to be curative in all inflammations of the mouth and gums whatever their cause, syphilitic and cancerous affections alone excepted. (Mr. Corner, p. 20.)

Typhoid Fever.—In these cases, perhaps, one of the most successful plans of treatment is the administration of wine and quinine. At first the quinine should be given in large doses of ten grains every two hours. This, in a case treated at St. George's Hospital, caused a very striking change, the pulse came down, the skin became cool and moist, and the diarrhœa ceased. Should this effect ensue, the quinine should be given in smaller doses, as of two grains three times a-day. (Dr. Fuller, p. 4.)

AFFECTIONS OF THE NERVOUS SYSTEM.

Cerebral Diseases.—There are three different state of the muscles in hemiplegia, indicating different conditions of brain, and requiring different treatment. If the paralysed muscles be *perfectly flaccid* the cerebral lesion is atrophic in its nature, the very opposite to inflammatory; the vital powers are below par. If the muscles exhibit any resistance to motion the lesion is of an irritative kind, as a small apoplectic clot, with laceration of healthy brain tissue around. When the muscles are hard and rigid, the brain lesion is decidedly irritative, sometimes inflammatory. In the first a supporting plan of treatment is required; ammonia, wine, and quinine. In the last bleeding, or, at all events, mercury is necessary. A clot, however small, will invariably give rise to coma; if very small indeed, it may be merely a lethargic state; if large, the coma

will be long and profound, and accompanied by snoring. If the hemiplegia be from white or atrophic softening merely there will be no prolonged, if any, loss of consciousness, and the intellect will generally speedily recover. (Dr. R. B. Todd, p. 21.)

CHOREA.—Whenever you see a case of chorea in a young person, always suspect that it has had its origin in rheumatism. Disease of the heart is very frequently found in cases of this nature. Most reliance is to be placed on sulphate or oxide of zinc in the treatment of this disease. (Dr. T. Addison, p. 51.)

"Arsenic is as sure to cure chorea as bark is to cure ague." (Dr. Rice, p. 139.)

COUP DE SOLEIL.—This is a disease of depression, and will not be relieved but aggravated by lowering remedies. The best treatment is to unfasten as gently as possible the man's dress and accoutrements, expose the neck and chest, get him into the shade if possible, raise his head a little, commence cold affusion over the head, chest, and epigastrium, continuing this at intervals till consciousness returns. A mild stimulant mixture must now be given in small doses. Clothing for troops whilst in tropical parts should be suited to the climate; for the head, a light woollen forage cap, with a good peak, and protected by a good turban, the curtain extending more than it does on each side to protect the temples. No stock is admissible. The frock and trousers should be of some light woollen texture, and loose, except round the ankles. Flannel should be worn next the skin, and even in the hottest weather a good blanket should be taken for the night, which is always excessively chilly. (Dr. G. S. Beatson, p. 363.)

DELIRIUM TREMENS.—Do not use alcohol, or even opium, in the treatment of this disease; the latter is only a palliative which hides and often aggravates the disease. The patient must in the first place abstain from all intoxicating agents, and take aperients, diuretics, and diaphoretics, to get rid of the nervous poison alcohol from the body. An emetic dose of ipecacuanha in the commencement is invaluable—it acts as a stimulant to the whole system, equalizing the circulation and promoting the secretions; and, moreover, it has the effect of removing the desire for intoxicating drinks. (Mr. J. Higginbottom, p. 40.)

EPILEPSY.—Phosphate of zinc is of the greatest use in the treatment of epilepsy and other nervous affections resulting from cerebral exhaustion. In convalescence from fevers which induce great wasting of tissues, and notably of brain matter to the extent of not unfrequently of leading to insanity, the phosphate of zinc with quinine produces the most satisfactory results; the proper solvent is dilute phosphoric acid. (Dr. Barnes, p. 48.)

Remove local congestion by counter-irritants, promote the healthy action of the secernent organs, and give tone to the constitution by vegetable and metallic roborants. There is no specific for epilepsy, and the salts of zinc, so prominently put forward of late, often fail. (Dr. Sieveking, p. 445.)

HEMICRANIA.—Dissolve four grains of acetate of morphia in a few drops of acetic acid, and add ℥iss. of laurel water and 10 drops of prussic acid. Of this mixture, 10 drops (or in very excitable persons five) are to be mixed with an equal quantity of water, and strongly aspired by the nostril corresponding to the side of the pain, keeping the other closed. The relief is immediate; but the existence of a coryza is a contra-indication to the employment of the remedy. (Dr. Jung, p. 363.)

HYDROCEPHALUS.—When once the soft union of the cranial bones yields to the expanding influence of the fluid within the brain, the progress of the effusion is mainly attributable to an atonic condition of the vessels. This gradual increase of fluid may be prevented by the application of permanent equable pressure by means of an elastic cap, closely fitting the head. In a case treated by the author the effusion of fluid was considerably reduced, approximation and union of the previously widely separated cranial bones being induced. (Mr. R. Phillips, p. 327.)

INCOMPLETE PARAPLEGIA.—There is a form of incomplete paraplegia—more weakness, and loss of control over the muscles of the limbs—the effect of disease of the bladder, kidneys, or urinary passages, and only cured by the relief of this primary disease. There may be no pain in the dorsal region on pressure, but cases have occurred where the pain on pressure in the dorsal region led to the diagnosis of spinal disease, and after death the spine and its contents were found perfectly healthy and the kidneys diseased. The intimate nervous connection between the urinary organs and the cord by means of the sympathetic is probably the cause. Some impediment to the discharge of urine is one of the earliest symptoms. There is generally obstinate gastric derangement. The sensibility of the limbs is not impaired, or very slightly; and they do not become atrophied or lower in temperature than natural. The sphincter ani is not paralysed. The bladder to a great extent loses its contractility, but not entirely. There is no history of violent neuralgic symptoms at the commencement of the disease. Great amendment will often follow catheterism and the removal of any obstruction to the free discharge of urine. Exercise, warm clothing, bathing, and change of air are important. Avoid aloes and saline aperients, as they tend to increase the urinary irritation. Gregory's powder is the best aperient. The patient may wear an elastic belt to support the lax abdominal parietes. A

mixture of cantharides and iron tends much to restore the contractile power of the bladder and relieve the urinary irritation. Opium relieves irritability very much. That which is productive of most good effects is a complete change of life, as a long sea voyage. Paraplegia is a common result of frequent seminal emissions, voluntary or involuntary; it is undeniable that the frequent agitation of the nervous system, so caused, leads to chronic inflammation and softening of the cord, with paraplegia as a necessary consequence. (Mr. Spencer Wells, p. 31.)

Nervous Headache.—To relieve the immediate distressing pain, anodynes are required. If opium or its alkaloid cannot be resorted to, there are other efficient anodynes which may be appealed to. Of these aconite is most to be relied on, from one to two minims of Fleming's tincture may be given and repeated every two or three hours if necessary. In some cases the effect is marvellous. The action of chloroform in this particular is too transitory to be of any avail. There are also other agents which might be called nervines, as valerian, and amongst dietetic means, tea and coffee, which are particularly applicable when the headache is the result of fatigue, mental or bodily. Of tonics, to exalt the nervous tone of the system, quinine and arsenic are by far the best; iron being also added when there is an obvious deficiency in the red corpuscles of the blood. It is in that form of headache which comes on in distinct paroxysms at regular intervals that arsenic is of most value, it should be given in small doses and for a lengthened period. Perhaps next in value to quinine and arsenic, comes zinc, of which the valerianate is the most eligible preparation, but it is usually given in doses far too small; six grains is often productive of much relief, and causes no ill effects. (Dr. J. A. Symonds, p. 388.)

Spinal Irritation.—The majority of the symptoms considered as the result of spinal irritation arise from over-exertion of one or more portions of the muscular system in debilitated subjects. The spinal tenderness has a similar origin, and the other symptoms considered as resulting from spinal tenderness, are concomitants only and referable to a common cause. (Dr. T. Inman, p. 20.)

AFFECTIONS OF THE CIRCULATORY ORGANS.

Endocarditis.—No matter what may be our opinion of the extent of endocarditis, we must meet the depression with stimulants and opium, and particularly with a full anodyne at night; and next, if we can obtain a rally, we must as soon as possible superadd local bleeding, blistering, and the use of mercury, to check the effusion of lymph, and to proceed to the absorption of what has been poured out. In the subacute stages, rest and abstinence from stimulants form one of the most important points in the treatment; the

patient should rest for weeks on a sofa or bed. In convalescence from pericarditis or endocarditis, you may give an anodyne every night. (Dr. Corrigan, p. 57.)

NÆVI.—In the treatment of nævi by caustics, none is preferable to chloride of zinc, it is more powerful in its action, and penetrates more deeply, than other caustics, and powerfully coagulates the blood in the tissues, surrounding the part to which it is applied. The surrounding parts having been protected by sticking plaster, or by a strong solution of gutta percha in chloroform, apply a paste composed of one part of the chloride of zinc to four of flour; this should be allowed to remain about twelve hours, when a white dense slough will have formed. As caustics are chiefly applicable where the nævus is large and superficial, it will seldom be necessary to repeat this; much pain is caused the first few hours, but this abates; the cicatrix is usually small. (Mr. J. F. West, p. 178.)

A case lately occurred to Mr. Hutchinson of the Metropolitan Free Hospital where there were more than a hundred distinct nævi of the most superficial character on the same child; all were cured, except about twelve on the scalp, by the continued application of the compound iodine ointment. To the remainder it is proposed to apply nitric acid should they not diminish under a continuance of the former treatment. (p. 181.)

Mr. Haynes Walton has recently treated several cases of nævus in the following manner:—A small tendon knife having first been pushed into the base of the tumour and moved about a little slightly, to break up the tissue, a solution of tannin, a drachm to an ounce of water, is injected by means of a syringe with a small nozzle. This must be slowly performed, and must be given up directly the tension of the tumour becomes apparent; by this means the blood coagulates, and after the lapse of some weeks the tumour disappears. There is no risk of sloughing taking place as when the muriated tincture of iron is used. (p. 377.)

Apply a mixture of corrosive sublimate, one part, and collodion, eight parts; the eschar falls off in from ten to fourteen days, and is not followed by suppuration. No pain is produced, and scarcely any cicatrix is left. For very small nævi one pencilling is enough, but in larger ones this has to be repeated, and in these it is best to effect their destruction gradually. (Dr. Cösfield, p. 435.)

VARICOSE VEINS.—In performing the operation of subcutaneous division of varicose veins, the two needles and their corresponding ligatures having been applied, it is not necessary to wait a couple of days before dividing the vein; this may be done at once with perfect safety, the blood between the two ligatures is evacuated, and thus all danger from its decomposing is avoided. The subcutaneous incision is pretty sure to heal by the first intention. (Mr. H. Lee, p. 237.)

During the last two or three years a large number of cases of varicose veins have been successfully treated by Mr. Erichson's plan of applying pins under the veins, being careful not to puncture them, and then sutures over the pins. It is not necessary to the obliteration of the vein to divide it subcutaneously six or seven days after the operation. (p. 435.)

AFFECTIONS OF THE RESPIRATORY ORGANS.

DROWNING.—In one instance of very long submersion the first signs of recovery followed the pouring ℨss. of sp. ammon. aromat. into the nostrils, and thrusting a feather dipped in ammonia as far up as it would go. (Dr. Cornstock, p. 427.)

PARACENTESIS THORACIS.—A trocar lately invented by Mr. Thompson of Westerham is well worthy of attention, it greatly lessens the likelihood of atmospheric air entering during the operation, and by its peculiar syphon action, facilitates the keeping up of a continuous flow of fluid. (p. 183.)

PHTHISIS.—Out of fourteen cases in which arrest of phthisis took place, in eight there was a complete change in the habits of life, not simply gentle walks or drives, but rough occupations, involving considerable and sometimes great exposure to vicissitudes of weather. Change of climate only seems to be directly beneficial, inasmuch as it gives more inducement to exercise. Patients should live generously, taking especially highly carbonaceous food, the free use of sugar, also of wine, beer, and other diffusible stimuli, which are of great use. Except perhaps cod-liver oil, no medicinal agents seem to act beyond mere palliatives. (Dr. Flint, p. 80.)

There are various conditions of the throat met with in phthisis. In the earlier stages the patient complains of dryness of the throat and cough, and on examination the throat is found smooth and shining, and the parts attenuated. It is a state of lessened tonicity without inflammatory action. A useful means of treatment here is the application of a mixture of equal parts of chloroform and olive oil, by means of a large brush, the patient should also frequently swallow about a table spoonful of a strong solution of suet in milk; great relief is obtained from the application of a strong solution of nitrate of silver to the fauces by means of a large brush. When the case is more advanced, an inflammatory state appears, with distended vessels and enlarged mucous follicles, chiefly upon the pharynx, but also on the uvula. This state and also where there is ulceration and fibrinous exudation, is best treated by the nitrate of silver. When the inflammation runs high and extends down the larynx, the application of nitrate of silver often causes alarming symptoms of choking, the best

topical application is then equal parts of oil and liquor potassæ well laid on with a large brush. (Dr. E. Smith, p. 77.)

PULMONARY DISEASES.—The cough and expectoration of pulmonary diseases are considerably alleviated and in some instances, entirely cured, (when the disease is confined to the mucous membrane,) by Dr. Horace Green's plan of injecting the bronchi with nitrate of silver solution. The manner of performing this operation and the precautions to be taken, will be found at p. 87. of this work. The instruments used are simple and inexpensive, and with proper care the operation not very difficult of performance. It promises to create a new era in the treatment of pulmonary affections, usually so unassailable from the impossibility of applying local treatment. (Prof. J. H. Bennett, p. 87.)

AFFECTIONS OF THE DIGESTIVE ORGANS.

CARIOUS TEETH, *Stopping for.*—A very good and easily applied cement for stopping teeth is soft sulphur; it is not acted on by any of the alimentary substances or dentrifices. Put some washed flour of sulphur in a test tube, heat it over a spirit lamp to over 350° Fahr., and pour it into cold water, when it will be a spongy mass, brown, soft, and elastic. A little ball of this should be pressed into the decayed tooth. (M. H. Henriot, p. 187.)

CHOLERA.—Dr. Black believes arsenic to have a specific action in cholera, from an experience of nearly two hundred cases, in none of which has it ever failed to produce a speedy and permanent cure. It may in a very severe cases where the cramps come on every few minutes, and the vomiting and purging are all but incessant, be given in doses of five drops of the liquor arsenicalis every fifteen minutes until the symptoms abate, and then be given every hour. (p. 346.)

CYNANCHE MALIGNA.—Give powdered guaiacum in combination with chlorate of potash. Support the strength with beef-tea, mutton-broth, &c. Cause the patient to frequently gargle the throat with a solution of chlorinated soda; or, if he be too young or unable to use the gargle well, cause his throat to be mopped or sponged with it. The secretions of course must be attended to; and in the later stages of the disease, tonics, such as quina, or bark, and nitric acid will be beneficial. (Dr. W. A. Bryden, p. 91.)

DYSENTERY.—In subacute and chronic dysentery confine the patient to bed, and in the recumbent position, that the bowels may be supported and kept quiet, and unirritated by the action of the abdominal muscles. Milk and farinaceous food are most applicable, as least stimulating peristaltic action, and being most likely to be assimilated. In the subacute and severer dysentery of this country no remedy is equal to Dover's powder in ten grain doses, with an

occasional dose of castor oil, guarded by a few drops of laudanum, for the removal of fæcal matter. If there be a deficiency of bile, give a little hydr. c. creta; if there be much pain or tenderness apply a few leeches to the anus. In acute cases confined to the rectum, medicines administered by the mouth do little or no good here give soothing injections with opium.

In the purely chronic form of the disease, the treatment consists in the administration of mineral and vegetable astringents, combined with opium, occasionally using aperients for the removal of fæces and foul secretions. When the ulceration is confined to the rectum or lower extremity of the colon, astringent injections of acetate of lead, nitrate of silver, sulphate of zinc, and gallic acid, will be most serviceable. But when the ulceration extends more or less throughout the entire extent of the colon, remedies administered by the mouth, especially the mineral astringents, act most effectually. In these cases slips of blistering plaster should be frequently applied. In the more advanced stages of the disease, and in the milder cases where we have a healing but lax state of membrane, the stools being bilious and containing but little blood or mucus, the vegetable astringents will answer best. A strong decoction of the Ægle Marmelos, or Bael fruit of Bengal is very useful. A few drops of laudanum may be added to each dose of this. (Dr. S. H. Ward, p. 97.)

Hare-Lip.—Having pared the edges, not in the usual way, but by an oblique incision from before backwards, slightly concave from above to below, take two or more sutures, each armed with two needles, one at either end; introduce the needles immediately under the skin, carry them completely through the remaining thickness of the lip, and tie them firmly *internally*, bringing the ends of the sutures out at the angle of the mouth to facilitate removal afterwards. A few strips of adhesive plaster may be applied externally. All blemishes arising from the use of pins are thus avoided. (Dr. A. Duke, p. 184.)

Hemorrhoids.—*Epistaxis.*—Two cases are mentioned by Dr. Barker, of New York, the one of severe epistaxis, the other of bleeding from the rectum, owing to internal piles, the rectum being so sensitive that no physical examination could be attempted. In the former he injected into the nostril about a drachm of the compound tincture of benzoin; in the latter, into the rectum, half an ounce; in both, the hemorrhage was arrested without any other unpleasant effects, than a temporary burning sensation. (Dr. Barker, p. 62.)

Piles and Prolapsus Ani.—Nitric acid will only prove speedily and effectually serviceable in those cases of internal piles where the diseased texture is only of moderate extent, has a broad base, and presents a very vascular appearance, as though the excrescence was composed chiefly of minute arterial branches. When, however,

the hemorrhoidal excrescences are very large, and of a blue appearance, mainly consisting of venous ramifications, nitric acid should not be applied, neither should it when a patient is suffering from what is called an acute attack of piles.

In cases of prolapsus ani of considerable size, when there is not a complication of large or several piles, and when the mucous membrane is simply thickened and relaxed, this remedy will be eminently serviceable. (Mr. H. Smith, p. 200.)

HERNIA.—*Wutzer's Operation.*—Mr. Spencer Wells has performed this operation in nine cases, and has met with very encouraging success. Some cases having now passed ten, nine, seven, and three years, without a sign of return. There has not been a failure, relapse, or bad symptom in any one of the nine cases. The instruments and mode of performing the operation are described at p. 191.

IMPERFORATE ANUS.—The rectum having been opened, two modes of procedure have hitherto been in vogue,—either to leave the parts to granulate and a passage established when the mucous membrane is not directly continuous with the skin outside,—or to seize the gut (which may be situated an inch or two in depth from the surface) and drag it down to the external parts. In the first case, gradual contraction takes place, and the passage often again becomes obliterated. In the second case, death often ensues, from peritonitis, or pelvic cellulitis. You will avoid both these evils by extending the process of drawing the rectum downwards over a considerable time, using gentle traction, introducing the forceps at certain intervals, and *gradually* endeavouring to accomplish the end. (Mr. R. Davies, p. 203.)

INTESTINAL WORMS.—*Kamala.*—Kamala is a brick-red powder obtained from the fruit of one of the euphorbiaciæ, a native of India. It appears to be a very effective anthelmintic. It yields an admirable tincture, more uniform in its action and infinitely less disagreeable than either oil of male fern, or spirits of turpentine. In most cases where the head has been carefully looked for it has been found. (Dr. Ramskill, p. 436.)

PEPSINE.—This must not be expected to digest a large quantity of meat at once. A patient taking it must not eat more meat than a mutton chop at once. Pepsine loses its power in a week or ten days, by which time either the stomach has regained its tone, or some other remedy must be employed. About fifteen grains of Boudault's pepsine must be given about twice a-day, before meals, and spread between two thin slices of bread like a sandwich. (Dr. T. K. Chambers, p. 92.)

AFFECTIONS OF THE BONES AND JOINTS, &c.

Amputation *at the Ankle-Joint.—Pirogoff's Operation.*—The essential point in this operation for removal of the foot is to leave the posterior part of the os calcis so as to fill up the heel flap; by this means the limb is lengthened by an inch and a-half or two inches more than by other operations, and the posterior flap has not the bag shape of Syme's, and so does not form a receptacle for a collection of pus. The os calcis is sawn through immediately behind the disarticulated astragalus, the remnant of the os calcis uniting by its divided surface with the inferior extremities of the tibia and fibula. The tendo-Achillis is not divided. (A minute account of the operation by Mr. Spencer Wells will be found at p. 140.)

Excision *of the Elbow.—Heath's Splint.*—The great object in this operation is to obtain a movable joint; to this end always remove not a mere slice from the edge of the bones, but a full inch or so; there is then less tendency to anchylosis. Employ a splint, invented by Mr. Heath, late house-surgeon to King's College Hospital, consisting of four iron plates, well padded, concave on their front surface, to fit the limb, convex behind; these are intended to be placed opposite to one another, one pair above and the other below the joint, projecting portions perforated with a female screw spring from the convex back of each plate. Two iron rods with hinges in their centres, and a small screw at either end, cut in opposite directions, to fit in the female screws of the iron plates, connect the plates above the joint with those below. The plates are now attached firmly by means of straps and buckles, and, if necessary, additional strips of plaster. By turning round the rods the extremities of the bones are separated to the required distance, while by means of the hinges in the centres of the rods motion can be made with the greatest facility: an engraving illustrating this will be found at p. 139. (Prof. Fergusson, p. 137.)

Of the Knee-Joint.—It is not only "meddlesome midwifery" which is bad, but meddlesome surgery. There is no one cause so productive of ill effects after the above operation than changing the splints too soon, and constantly examining to see if consolidation has commenced. After the operation the limb should be placed on a straight back splint very carefully padded, that there may not be any unequal pressure, especially about the heel and the malleoli, where it is especially liable to take place. The two side splints should be movable, that the wound may be readily dressed. The pads should be secured from soiling by being covered with oil silk. (Ed. of 'Med. Times and Gazette,' p. 147.)

Removal of the Patella in.—Mr. Fergusson is an advocate for the removal of the patella even when healthy, unless it is bound to the condyles of the femur by osseous material. It is liable to give subsequent annoyance. (p. 146.)

Of the Os Calcis.—In the removal of this bone the incisions, one transverse and one longitudinal, are usually made *across* the sole of the foot, but here there is a great disadvantage, namely, that cicatrices are left along the line of most pressure. A better plan is to carry a horse-shoe incision from a little in front of the calcaneo-cuboid articulation round and behind the heel to a corresponding point on the opposite side of the foot; dissect up the semicircular flap thus formed by carrying the bistoury close to the os calcis, the under surface of which is exposed. Then make a perpendicular incision about two inches in length, over the middle of the tendo-Achillis falling into the horizontal one. Detach the tendon and dissect the flaps up close to the bone, carry the blade over the upper and posterior part of the os calcis, open the articulation with the astragalus, divide the ligaments, and turn the bone out. Thus there is no cicatrix over the parts most exposed to pressure. (Prof. Erichsen, p. 153.)

FRACTURES.—*Plaster of Paris Bandages.*—This kind of bandage will be found of the greatest use in the treatment of fractures, as a limb may be put up in it within a very short time of the occurrence of the fracture: it sets so rapidly that there is no need to keep the patient in a constrained position for some time, as when the starched bandage is used; it is perfectly cleanly, and does away with the use of splints, and is easily and quickly applied. (See description of mode of application, p. 161.) It is applicable to any simple fracture where there is not much displacement, as of the fibula, or tibia, or even the humerus. (Mr. P. W. Swain, p. 161.)

LUXATION *of the Inferior Maxilla.*—Direct the patient to open the mouth widely, rest the index and middle fingers of each hand upon the mastoid process on either side, and press the thumbs against the prominence formed on either cheek by the point of the coronoid process; by a moderate degree of pressure the condyles will slip back into the glenoid cavities. The above plan was first recommended by Nélaton. (Dr. E. Whittle, p. 178.)

WOUNDS OF THE HAND.—It is a practice often productive of inflammation and thecal abscess (especially in the working classes) to encircle every little wound of the fingers with strips of adhesive plaster. Instead of this, having first cleansed the hand by soaking in warm water, apply merely strips of lint or linen wetted in tepid water. If it be a severe lacerated wound at the back of the hand or the palm, pass a finger through an aperture in the linen, which is thus enabled to support the parts very firmly; raise and support the arm on a pillow, and keep the linen constantly wet with cold water dropping on to the part. (Mr. J. Birkett, p. 157.)

AFFECTIONS OF THE URINARY ORGANS.

Bright's Disease.—Our diagnosis as to the state of advancement of this disease will be materially assisted by observing the size of the waxy casts, which increase in diameter as the disease progresses, owing to the tubes becoming denuded of their epithelial lining; this will be more clearly seen by turning to the woodcut at p. 109 of this volume, where the large casts are from tubes which have lost their ephthelial lining, and the presence of a large proportion of which therefore indicate an advanced form of disease. (Dr. G. Johnson, p. 106.)

Bronzed Skin.—It is believed from analysis of the blood, that the sugar making function of the liver is interfered with in this disease. The free dietetic employment of sugar considerably relieves the malaise and debility of this disease. (Dr. Todd, p. 130.)

Diabetes.—In a case lately treated by Dr. W. Budd, at the Bristol Royal Infirmary, the patient was allowed an unlimited amount of sugar, with the view of supplying the material, the loss of the elements of which from the body, causes the wasting and loss of strength. No remarkable alteration resulted from this treatment, either as to the increase or diminution of sugar in the urine, but the patient gradually seemed to gain strength, and two months after the adoption of this new plan of treatment, although he was taking eight ounces of sugar and six of honey daily, he was only passing three pints of urine, of specific gravity, 1032. (p. 122.)

Enlarged Prostate.—Amongst other means of treatment, the following are particularly worthy of note. Let the patient sit every morning for about twenty minuites in a tepid hip bath, (90° or 94°, or warmer,) to which the bittern or mother lye of the Kreuznach springs has been added in varied proportions, beginning with half a pint, or pound, according to the form in which it is obtained, to four gallons of plain water. Local applications may be made in the form of enemas or suppositories, containing iodide of potassium and Kreuznach bittern, or bromide of potassium, (formulæ will be found at p. 220.) The iodide and bromide of potassium may also be given internally, three to ten grains of the former, to one of the latter, twice a day. (Mr. H. Thompson, p. 219.)

The bromide of potassium given internally in these cases, has a very beneficial effect on the enlarged organ, it may be given week by week alternately with the muriated tincture of iron, for a period of several months. (Edit. of Med. Times and Gazette, p. 221.)

Supposing you have to perform *lithotrity* in a case of enlarged prostate, you must, in order to success, take into account the alterations which have taken place in consequence of the prostatic disease. The two principal are;—first, elongation of the passage by an inch or

more; and second, formation of a sort of pouch beneath the neck of the bladder, in which pouch the stone usually lies; to overcome the first, you require to have your instruments several inches longer than usual; you will best overcome the second by reversing the beak of the instrument when introduced into the bladder, or by tilting the pelvis of the patient backwards, to execute which proceeding quickly, every lithotrity couch should be provided with some mechanical contrivance. (Mr. W. Coulson, p. 216.)

INCONTINENCE OF URINE.—When incontinence of urine in children results purely from atony, and is not the result of irritation from urinary causes, apply galvanism by the aid of a catheter in the bladder. It has proved satisfactory in the hands of Mr. Simon. (p. 221.)

A case lately occurred to Mr. Pollock of St. George's Hospital, strikingly illustrating the efficacy of belladonna in incontinence of urine. The patient was a boy aged 10, all the usual remedies had failed, no stone was detected, and the urine was apparently healthy. He was ordered one twelfth of a grain of extract of belladonna three times a day, and five grains of calomel and scammony twice a week. The belladonna produced an immediate effect, marked improvement being noted even after the first dose. After rather more than a month's attendance, he was discharged quite cured. (p. 381.)

MOVEABLE KIDNEYS.—A knowledge of the fact that the kidneys may in a healthy person, be in an abnormal position in the abdomen, and detectible by external manipulation, is important, lest any errors in diagnosis should be caused from suspecting the presence of some malignant or otherwise dangerous tumour. In these cases the mass is smooth, hard, and resisting, rounded in outline, can be moved upwards and slightly downwards. (Dr. C. J. Hare, p. 161.)

SOUNDING FOR STONE.—If it be a noisy struggling child, always give chloroform and inject the bladder; you will thus by a little extra trouble, be saved the annoyance of pronouncing that no stone is present, (and in these circumstances a small and light stone might be easily overlooked,) when subsequently, perhaps, by another person, one is discovered and removed. (Ed. Med. Times and Gazette, p. 403.)

AFFECTIONS OF THE SKIN.

ARTIFICIAL CUTICLE.—A mixture of collodion and castor oil may be used with great success when the skin is abraded by irritating fluids, as urine, in cases of vesico-vaginal fistula. In these cases it may be spread over the excoriated skin of the perineum and thighs; it forms a smooth elastic coating or varnish which resists the action of the urine for many hours. (Dr. Savage, p. 247.)

BURNS AND SCALDS.—Having cleansed the parts, and punctured the vesications, paint over the entire surface an application of two parts of collodion and one of castor oil, which repeat three or four times the first day, so as to form a covering entirely excluding all contact of the atmosphere. When suppuration sets in apply a linseed poultice over the whole surface, and when the slough has separated, an ointment, composed of an ounce of prepared chalk, two drachms of olive oil, and half an ounce of spermaceti ointment, spread on lint. The above is an outline of the treatment at present pursued at King's College Hospital. (Mr. P. W. Swain, p. 243.)

CHAPS AND EXCORIATIONS.—An excellent application is a mixture of glycerine and tannin, equal parts, by weight. The tannin readily dissolves in the glycerine. (p. 333.)

ECZEMA *of the Face in Children.*—Dr. Behrend recommends the following application for the crusts which frequently cover the faces of children:—Cod-liver oil, fifteen, and bicarbonate of soda, two parts. (p. 247.)

ENLARGED BURSÆ.—Even when bursæ are inflamed, and the skin over them red, instead of making any incision into them it is preferable merely to puncture them with a grooved needle. After evacuation of the contents apply pressure by means of soap plaster and bandage, renewing this from time to time and repeating the puncture of the sac also if necessary. The result is generally a safe and permanent cure. (Mr. W. Coulson, p. 377.)

ENLARGED LYMPHATIC GLANDS.—If you have an enlargement of cervical glands in a patient of middle or older age, evidently neither inflammatory nor sympathetic, at once suspect cancer, especially if under the upper or middle part of the mastoid muscle. The suspicion is increased if the patient has lost weight and strength, and the swelling is hard and not very moveable. Take care and do not confound scrofulous sloughing of the inguinal glands with that of a syphilitic origin. In the former there is not that great external swelling or inflammation seen in the latter; and though the former is often excited by an attack of gonorrhœa, yet there will not be any syphilitic sores on the genital organs. (Mr. Paget, p. 233.)

ERYSIPELAS must be treated with stimulants, as brandy, beef-tea, quinine, ammonia, chloric ether, &c., together with good support. In desperate cases with intense coma and typhoid symptoms, give turpentine in doses of ʒij. to ℥ss. with one-half or one-third the quantity of castor oil: if given in less doses it produces unpleasant head symptoms from the purgative action not being sufficiently decided. The most agreeable application to the part is lard and cotton wool, after relaxing the skin by warm fomentations. The early use of small incisions extending to the depth of the disease is

of great advantage in that variety complicated with diffuse inflammation of the cellular tissue.

In chronic erysipelas, apply frequently a solution of nitrate of silver, or small blisters at short intervals, at a little distance from the affected parts. Occasionally when these fail, an issue in the arm effects a cure. (Mr. P. H. Bird, p. 231.)

Idiopathic Erysipelas.—Erysipelas at the present day requires a tonic and stimulating treatment; but at the same time the antiphlogistic treatment formerly employed was then justified. The present type of the disease depends on a deteriorated condition of the constitutional powers of the inhabitants of populous parts. The cause of this deterioration is capable of very important amelioration. (Dr. J. Hall, p. 222.)

INGROWING TOE-NAIL.—The chief pain in the operation for the cure of this affection is caused by the necessity of forcing away a portion of the nail from attachments rendered excessively tender by inflammation. It is not generally known that by rubbing the nail well with nitrate of silver along the line of intended division, about two days before the operation, this tenderness is done away with, and the operation rendered nearly painless, as the caustic causes the nail to loose its attachments to the parts beneath. The best plan of doing this is to gently introduce a bit of cotton wool along the edge of the nail, thus separating it from the overgrowing granulations, and along the edge of this to apply the nitrate of silver. If the nail be very thick, it may be necessary to scrape off the blackened parts and apply the caustic a second time. (Mr. J. Long, p. 238.)

There is no such thing as ingrowing toe-nail; it is the upgrowing of the quick through exposing the same, and taking away the natural protection and support of the nail itself. Therefore do not remove the nail, but soak the part well in hot water, and delicately remove all discharge, pass in plenty of very finely powdered burnt alum, cover all the fungus with the same, and on the next and every day do the same until no longer sensitive, then strap down the alum first putting on the top, not under, a piece of lint. (Anon, p. 239.)

MENTAGRA OR SYCOSIS is often very troublesome and obstinate. The object of treatment is to destroy the vegetable parasite which causes or is the disease. An ointment of corrosive sublimate, one grain, and lard, two grains, is often very useful, or the white precipitate ointment of the Pharmacopœia. An ointment composed of a scruple of iodide of sulphur to an ounce of lard is strongly recommended by Dr. Thompson. Warm fomentations and poultices are very useful. Epilation is sometimes absolutely necessary to effect a cure. The condition of the digestive organs must be attended to,

and purgatives, tonics, and antacids exhibited as required. (Dr. W. Jenner, p. 242.)

Poultice with linseed until the scabs are removed, and then apply constantly a lotion composed of two drachms of manganese, with potassa or permanganate of potash and a pint of water. After the ulcers are healed apply red precipitate ointment every night for several weeks. (Mr. W. Cooke, p. 247.)

PARASITICIDES.—The following is the formula of the Hospital for Diseases of the Skin for the "Compound Sulphur Ointment" which is in general use against scabies, favus, and true ringworm diseases which depend upon parasites, which it is necessary to kill:—℞. Of sublimed sulphur half-a-pound, of the ammonio chloride of mercury half-an-ounce, and of the sulphuret of mercury half-an-ounce; to these well rubbed together add four ounces of olive-oil, sixteen ounces of fresh lard, and twenty minims of creosote. It will be seen that we have here in combination three different drugs, each possessing great efficiency in the destruction of insect and fungus life. The object in view, that of obtaining a vigorous compound, which at the same time shall not be irritating to the skin, is, we believe, exceedingly well attained. (p. 445.)

PEDICULI PUBIS.—Wash the parts thoroughly, first with soap and water, then with pure water; dry them, then pour chloroform on drop by drop, and rub it in; then cover the parts with a folded handkerchief for half an hour, when another washing with soap and water should be performed, in order to detach the debris of the pediculi. (Dr. Hamal, p. 247.)

THREATENED GANGRENE.—Where gangrene of the lower extremities, or, indeed, of any part is threatened, nothing is more necessary than that a steady and equable degree of warmth should be maintained. The best means is to wrap the parts up in cotton wool. (Mr. Hancock, p. 239.)

TINEA FAVOSA.—If the patient be in a poor state of health, improve this by cod-liver oil, syrup of iodide of iron, and bitter tonics; but your chief attention must be directed to destroy the plant; first remove the crusts by a bread poultice, and then apply a solution of corrosive sublimate in water, or mixed with lard, in the proportion of eight grains to the ounce, or acetate of copper mixed with lard, half a drachm to the ounce. But, perhaps, the best plan is to apply from the first a piece of lint dipped in a saturated solution of sulphurous acid and covered by oil silk to prevent evaporation. If the disease be in the hairy scalp and has entered the hair follicles, it is very difficult of cure, owing to the difficulty of bringing the parasiticides in contact with the plant, and, consequently, epila-

tion, a plucking out the hairs one by one, is almost essential to a permanent cure. The hairs will grow again if the follicle has not been destroyed by the disease. (Dr. W. Jenner, p. 244.)

ULCERS.—Finely powdered chlorate of potash is an excellent application to cachectic ulcers; it seems to speedily induce cicatrization, and is very convenient of use; it is of great use in cracked nipples and open buboes; it should be dusted into the sac with the finger; and it may also be prescribed internally at the same time. (Mr. Hutchinson, p. 237.)

Apply a strong lotion of chlorate of potash (℥ss. to Oi. water, with forty minims of strong hydrochloric acid), which is very stimulating, and converts a foul ulcer into a granulating sore. (Mr. Cooke, p. 239.)

VENEREAL AFFECTIONS.

SYPHILIS.—*Formulæ.*—The following is the prescription for the mistura hydrargyri bichloridi of the Pharmacopœia of the Hospital for Diseases of the Skin:—℞. Of the bichloride of mercury two drachms, of strong hydrochloric acid one drachm, of spirits of camphor two drachms, of burnt sugar half a drachm, of water a gallon. The dose is from a drachm to two drachms, each drachm containing a twelfth of a grain of the bichloride. An extemporaneous biniodide of mercury is also much used, the formula for the mixture being as follows:—℞. Of the bichloride of mercury two drachms, of the iodide of potassium six ounces. of the tincture of cardamoms two ounces, and of water a gallon. Of this, the dose, a drachm, contains a tenth of a grain of the bichloride, and two grains of the iodide. Simultaneously with the use of either of these mixtures, Mr. Startin almost always orders the "Red Ointment" to be rubbed into the patches of eruption, or applied to any ulcers which may exist. The formula for this "Unguentum Rubrum," the prime favourite of the Institution is,—of the bisulphuret of mercury half an ounce, of the nitric oxyde of mercury half an ounce, of creosote twenty minims, and of fresh lard sixteen ounces. (p. 446.)

AFFECTIONS OF THE EYE AND EAR.

ARTIFICIAL PUPIL.—Mr. Critchett has lately operated on several cases in the following manner:—Having made an incision close to the corneal edge sufficient to admit of Leur's forceps, the iris is seized just within the opening (that is, very near to its attached border) and so gently drawn out until enough is prolapsed to allow of the application of a fine ligature to prevent its return. By this means the natural pupillary edge of the iris is untouched and

merely displaced to the elected position. This is a modification of an operation suggested by a surgeon of Nantes. If the pupil have strong adhesions this mode is not applicable. (p. 439.)

An ingenious suggestion has been made by M. Tavignot in the 'Moniteur des Hôpitaux' for making an artificial pupil by galvano cauterization. He passes in the platinum rod through an aperture in the external circumference of the cornea, and applies it to the point he wishes to influence. By this means the size, shape, and position of the pupil can be accurately regulated. Thus far it is deemed only applicable to subjects who have already undergone the operation for cataract; as, in the case of the lens being present, its opacity would be induced. (p. 256.)

CATARACT.—The great objection to needle operations is the length of time required for cure. Moreover, one operation rarely suffices, and generally two or even three may be necessary. But the ultimate results of needle operations are far more favourable than those of extraction. Even in hard cataract it is very rare indeed that the lens remains undissolved, so that objections on this ground are of no practical moment. According to Mackenzie, the results of extraction were favourable in 51 per cent., indifferent in 6½, and failures in 42½ per cent. From experience (at the Liverpool Eye and Ear Infirmary) the results of displacement were successful in 69½ per cent., indifferent in 9, and failures in 21½ per cent., of which 12 were known to be amaurotic before operation. (Dr. J. B. Nevins, p. 258.)

DISCOLOURATION OF CONJUNCTIVA from *Nitrate of Silver*.—In those cases where the conjunctiva has become discoloured from the prolonged use of nitrate of silver, try a solution of hyposulphite of soda (gr. x. ℥i.) It should be applied by means of an eye-glass, so as to ensure a prolonged contact with the conjunctiva, and should be continued for many months. It was first suggested by its use in photography for a similar purpose. (Mr. Dixon, p. 440.)

DIVISION OF THE TEAR PUNCTURE AND ITS CANAL.—For the performance of this little operation a very fine and sharp pair of scissors are preferable to a knife and director, as the operation is accomplished much more rapidly and easily; the slit is always perpendicular and never reunites. The greatest width of the blades of the scissors should be one-sixth of an inch, and their length from rivet to point half an inch. (Mr. Solomon, p. 252.)

GLAUCOMA.—It seems probable from the morbid anatomy of this disease, that the loss of sight does not depend upon disease of the retina, but upon the effects of pressure upon this membrane and the entrance of the optic nerve. This pressure being relieved the sight is restored. For this purpose Dr. A. von Graefe recommends the excision of a portion of the iris, in its entire breadth from the

edge of the pupil to its ciliary margin. The aqueous humour drains away for a day or two after the operation. The hardness of the globe is at once lessened; the pain abates; the dulness and haziness of the cornea disappear, and improvement commences in the deeper parts of the eye. The results are not so striking in chronic as in acute glaucoma, as in the former structural changes have occurred in the retina owing to the long-continued pressure to which it has been exposed. For the mode of performing the operation see p. 265. (Mr. J. W. Hulke.)

Relief to the tension of the globe may be obtained by simply puncturing the sclerotic with a fine grooved needle directed backwards, and introduced about three or four lines behind the margin of the cornea: it may be repeated if necessary. This plan of procedure is quite as effectual and much easier to perform than Graefe's plan of iridectomy, and is attended with none of the risks of that operation. (Mr. R. Middlemore, p. 443.)

INFLAMMATIONS OF THE EYE.—Except in catarrhal and purulent inflammation, the surgeons of the Moorfields Hospital strongly disapprove of the use of topical stimulants. In catarrhal and purulent inflammations, nitrate of silver drops are used of one grain to the ounce, though in purulent inflammation, especially in infants, an alum lotion of eight grains to the ounce answers better. To remove lime from the eye a vinegar lotion is the most effectual; it should be very freely used. (p. 274.)

ORCHITIS.—Apply freely every two hours the following application. Lard, 60 parts; aqueous extract of belladonna, 16 parts. Cover the parts with a linen compress; this promptly relieves the pain and leads to a cure in a mean period of eight days. (M. de Larue, p. 440.)

PUPIL, *Dilatation of*.—The pupil should not be dilated before the performance of extraction, though it is desirable that it should be very fully dilated before inspection with the ophthalmoscope for this purpose. A solution of sulphate of atropine, two grains to an ounce of distilled water answers best, though if in the course of iritis it is deemed desirable to employ belladonna, the extract itself, rubbed up with warm water, and used as a fomentation, is preferable to atropine. The above is the practice at the Royal Ophthalmic Hospital. (p. 256.)

STRABISMUS.—In performing the subconjunctival operation for the relief of this affection, two very important points are, to make the external incision small, and though vertical, completely below the lower margin of the muscle, and at the conclusion of the operation to apply

one or two very fine sutures to the edges of the wound to secure accurate adaptation. The muscle is dragged to the wound by a blunt hook, and though more or less covered by conjunctiva it can easily be divided by a pair of blunt-pointed scissors.—(Mr. H. Walton, p. 253.)

STRUMOUS OPHTHALMIA.—When the intolerance of light is great, the bowels irritable, and the child very restless, a full opiate at night, with bark in the day, is often very quickly effectual. Battley's liquor cinchonæ is the best preparation for children. In cases of pustulo strumous ophthalmia in children, chlorate of potash, as an alterative saline is very useful. (p. 373.)

TINEA CILIARIS.—The old incrustations about the roots of the lashes should be removed by means of a pair of broad blunt forceps, meeting only at their extremities. The scab being seized close to the edge of the lid must be gently detached and drawn a little forwards, but not over the whole length of the lashes; these latter should be cut off close to their roots. Nitrate of silver should then be applied on the outer edge of the lids (avoiding the Meibomian orifices.) The scabs cannot accumulate again when the lashes are kept short; the lashes themselves are preserved; and any applications are more readily made. (Mr. J. F. Streatfield, p. 440.)

TINEA TARSI.—To prevent adhesion of the lids in this disease, the dilute nitrate of mercury ointment is most frequently used at the Moorfields Hospital. (p. 253.)

VASCULAR TUMOURS *within the Orbit.*—In cases of vascular tumours within the orbit where it is necessary to produce sufficient inflammation to consolidate the morbid growth without injuring the eye, inject a saturated solution of tannin. (Mr. R. Taylor, '*British Medical Journal,*' Feb. 20, 1858, p. 154.)

MIDWIFERY AND THE DISEASES OF WOMEN.

COTTON-WOOL PESSARY.—A simple, inexpensive, and efficient form of pessary in cases requiring uterine support, or the employment of medicated substances in the vagina, is one composed of cotton wool, encased in a pyriform net. It is softer, less irritating, and far more cleanly than the sponge or caoutchouc pessary, and readily absorbs astringent or other solutions which may be prescribed. (Mr. W. Bryant, p. 332.)

GALVANISM *in Obstetric Practice.*—Individual shocks applied to the uterus produce no appreciable effects upon it; and a current directed transversely through the organ produces only a partial contraction of it in the direction of the current; but a sustained current of elec-

tricity directed longitudinally through the uterus, from the upper portion of the spinal cord, excites the action of the uterus, and singularly enough also accelerates the dilatation of the os uteri. A case of placenta prævia is mentioned, in which several alarming hemorrhages had occurred before labour had commenced. A sustained current of electricity applied in the manner stated for six hours, not only prevented further hemorrhage, but so accelerated the dilatation of the os uteri, that the hand was readily introduced and delivery completed with safety to the patient, although the child, from the extensive separation of the placenta, was still-born. In another case this mode of treatment speedily induced the expulsion of an organised membrane remaining after an early abortion, the ovum having been previously expelled. The patient was much exhausted by repeated floodings. (Dr. F. W. Mackenzie, p. 379.)

Leucorrhœa.—An iodide of potassium injection (ʒiss. to a pint of water) used three or four times daily, is very useful in the arrest of this affection. (Dr. Payne, p. 291.)

Obstinate Menorrhagia.—In two cases under the care of Dr. Henry Savage, of London, after all other remedies had failed, a cure was effected by injection into the uterine cavity, in one case, of three drachms of tincture of iodine of the London Pharmacopœia, and in the other of four ounces of a mixture (equal parts) of tincture of iodine and water. In the second case the injection was repeated every third day for a fortnight. Both cases were unconnected with pregnancy in any way. In both the uterus was rather increased in size, and softer than natural, the os being slightly open. Injections of alum and tannin had previously been productive of temporary benefit in one of these cases. (p. 287.)

Ovarian Dropsy.—*Injection of Iodine.*—This operation is not so dangerous as supposed by most surgeons. It has proved eminently successful in many cases, in both France and this country; even if the cyst be multilocular, the progress of the disease may be much arrested. (Mr. I. B. Brown, p. 312.)

Perinæo Plastic Operation.—One great element of success in this operation is to remove the *entire thickness* of the vagina as far as the perineal fascia. (Dr. H. Savage, p. 300.)

Polypus Uteri.—The best mode of removing these growths, is to seize them with a pair of long vulsellum forceps, and having dragged them into sight to pass a needle armed with a strong double ligature through the base, which can now be tied in two parts, then cut off the polypus just anterior to the ligature, and plug the vagina with oiled lint. This plan is infinitely preferable to that of either

simply cutting off the polypus, or the more tedious process with Gooch's apparatus, where the sloughing of the polypus within the vagina generally causes serious constitutional disturbance, not unfrequently pyæmia, and sometimes death. (Mr. I. B. Brown, p. 299.)

Dr. Savage of the Samaritan Hospital, lately removed a vascular uterine polypus, without pain or hemorrhage, by means of an ecraseur the curve of which can be made to fall into the hollow of the sacrum and the point to pass up into the uterus. When removed by this instrument, the polypus is first seized by a pair of ring forceps, and the chain is passed over these, and drawn tight, precisely as the cord in the ordinary operation by ligature. (p. 295.)

POLYPTOME.—Dr. Lever has lately introduced an instrument intended to facilitate the removal of these tumours. It combines both the action of a knife and that of a hook. At p. 297 will be found an engraving of this instrument, and the mode of using it.

PROLAPSUS UTERI.—*Plastic operation.*—In this operation the great element of success, is to denude a sufficient portion of the back part of the vagina, to get contraction of at least the lower two inches. To this end do not denude two narrow slips, but a portion extending from an inch to two inches on each side, commencing at the anal commissure, and extending an inch and a half upwards into the vagina. (Mr. J. Hutchinson, p. 305.)

SALIVATION OF PREGNANCY.—Give quinine in two-grain doses; it is often of much use, and has succeeded when other means have failed. (Dr. Mauthner, p. 324.)

SORE NIPPLES.—An excellent application is a mixture of equal parts by weight, of glycerine and tannin; the tannin readily dissolves in the glycerine. (Anon, p. 333.)

TEDIOUS LABOUR.—In cases where labour is arrested, not from any obstacle, but from simple atony and want of pains, where in fact the polarity of the cord is exhausted, try the effect of strychnia; in doses of one sixteenth of a grain to commence with, repeated and gradually increased as necessary. It induces uterine contractions in a very remarkable manner, each dose being distinctly followed by this effect; it does not cause violent or continued action of the womb. In not one of nine cases in which it was administered, did any bad effects follow, and in all, the labour was accomplished within an hour and a half after commencing the use of this drug. (Dr. H. H. Vernon, p. 324.)

UTERINE SPECULUM.—This instrument is far too frequently used, and leads to errors in diagnosis; it can at best only tell us the tint of the os uteri, and even the knowledge of this is often of no use

whatever. The finger is far more useful, by it we can make out ulcerations, granulations, fungosities, and the consistence of the cervix. Young practitioners should get accustomed to make their diagnosis by digital examination alone. (M. Velpeau, p. 332.)

UTERINE HEMORRHAGE.—In cases of uterine hemorrhage never give diffusible stimulants, they increase the arterial circulation, and consequently the hemorrhage. The common plan of giving the patient a little cold water, and keeping the body cool is much more rational. Secale cornutum, *if good*, will answer in most cases; in others a drachm of the tincture of opium, followed by a further half drachm in half an hour, if necessary, will succeed; this not only checks the hemorrhage but relieves the pain. But some cases occur where nothing seems to succeed till the stomach, overloaded with fluids, has by a violent effort emptied itself. This state of the stomach may be anticipated, and in many cases a good dose of ipecacuanha, producing vomiting, will alone stop the hemorrhage. (Mr. J. Higginbottom, p. 283.)

Accidental Hemorrhage.—If you have a case of accidental hemorrhage during labour, and the os be pretty well dilated, a good plan is to apply galvanism to the abdomen, which will probably soon bring on uterine contractions, and the head of the child will descend low enough to admit of the forceps being applied. This is especially valuable, as in these cases ergot of rye often entirely fails to induce contraction. (Mr. S. J. F. Stafford, p. 286.)

Hemorrhage from Malignant Ulceration of the Cervix Uteri.—A good plan to arrest this is to paint the diseased surface over with tinct. benzoin co. (Dr. B. F. Barker, p. 62.)

Post-Partum Hemorrhage.—Inject into the rectum 4 oz. of turpentine, 4 oz. of cold water, and a handful of common salt, forcibly retaining this by pressure from a folded napkin until violent tenesmus is induced; this will invariably be attended with contraction of the womb. Turpentine is used because it is a powerful stimulant and restorative to the whole system, and, moreover, possesses considerable anti-hemorrhagic properties. (Mr. T. Elliot, p. 282.)

UTERUS.—*Effects of Opium.*—Opium has a very different effect in large and in moderate doses on the uterus. In large doses it relaxes and favours hemorrhage; in small or moderate doses, as 25 minims, it stimulates and causes contraction. It is especially applicable in cases of deficient power from exhaustion or fatigue, being here, perhaps, the best remedy which can be employed. (Mr. J. Gabb, p. 285.)

VOMITING OF PREGNANCY.—In a case which occurred to Dr. Clay, of Manchester, where the induction of premature labour seemed absolutely necessary, from the failure of all other means, for relieving the incessant vomiting—on introducing the finger to guide an

instrument for this purpose, the os and cervix uteri were found very tender and painful when touched, and violent efforts of vomiting caused. Considering this state to be produced by pressure on the os uteri, instead of proceeding with the operation, he ordered the patient to be laid quite prostrate on the back, with the head very low and hips considerably raised. In about 24 hours the tendency to vomit was considerably less, and small portions of food could be retained: she continued to improve, and ultimately safely completed the period of utero gestation, but at any time the slightest attempt to resume the upright position was followed by violent retching and distressing vomiting. Dr. Clay places much reliance on the application of a few leeches, by means of the speculum, directly to the os and cervix uteri. (p. 277.)

MISCELLANEA.

ANIMAL CHARCOAL *an Antidote to Vegetable Alkaloids.*—If to solutions of the poisons of henbane, belladonna, stramonium, or morphia, a little animal charcoal be added, the poison is completely neutralized. This property makes animal charcoal of the greatest use as an antidote to these substances; common bone black will do very well; vegetable charcoal does not possess these properties. (Dr. A. B. Garrod, p. 361.)

ARSENIC, *Therapeutical Uses of.*—The lameness and deformities of chronic rheumatism frequently disappear under a prolonged use of arsenic. It is generally given up too soon. Two cases of this nature are related, in which the most marked benefit was derived from this mode of treatment. About five drops of the liquor arsenicalis should be given after each meal, and continued till the characteristic effects of this drug are produced, when it may be intermitted for a time. Many and obstinate forms of neuralgia are in a similar manner found to yield to arsenic. Arsenic holds the "foremost place" amongst the remedies employed for the cure of chorea, and the author has never yet seen it fail. Besides the various forms of skin disease in which its use is so well known, it has been used very extensively and successfully by Dr. Simpson in amenorrhœa and other disorders of the uterus, where iron appeared to be contra-indicated, as well as in that peculiar affection of the bowels which he has described as prevalent among females, and characterised by copious discharge of membranous shreds, and accompanied by great emaciation and a long train of neuralgic and other nervous symptoms. Dr. Simpson places most reliance upon small and very long-continued doses of arsenic, as two drops of Fowler's solution, or a pill containing the sixtieth of a grain of arsenite of potass, taken three or four times a-day. (Dr. Begbie, p. 396.)

Bichromate of Potash *as an Astringent.*—To remove the fœtor from sloughing wounds, syphilitic sores, ulcers, &c., and where an astringent is useful, a lotion of bichromate of potash, five grains to the ounce, and increased, is very serviceable. In a case of chronic leucorrhœa, where the lips of the os uteri were swollen and spongy, it effected a complete cure after many other remedies had wholly failed. (Mr. E. A. Lloyd, p. 375.)

Cheap Collodion.—Steep white printing or machine-paper in concentrated sulphuric acid from five to eight minutes, and then wash and dry it. It becomes now as stiff as parchment; and if we cut it up small and digest it in ether, we obtain a substance not very different from common collodion, at a much cheaper price. (*Med. Times and Gazette*, April 24, 1858, p. 433.)

Citrate of Iron and Strychnia.—The citrate of iron and strychnia is a preparation which has lately been used with considerable success at the Royal Free Hospital, by Dr. O'Connor. The dose is about three grains three times a day, and taken immediately after a meal. In cases of dyspepsia of an atonic character, in atonic affections of the uterus, as an emmenagogue, and in chorea, it has chiefly proved useful. (p. 381.)

Galvanism.—This most important agent is partly overlooked by the profession from an insufficient knowledge of its utility. It is very useful in cases of painful affections of the feet, the sequel of rheumatic inflammation, with diminished and unequal power of the muscles of the leg and foot, also decreased temperature and tumefaction of the cellular tissue, a condition not yielding to either general or local treatment. The current may be passed along the course of the limb. (Mr. J. Grantham, p. 374.)

Glonoine.—*Nitrate of Oxyde of Glycyl.*—If nitric and sulphuric acids be added to glycerine, and the whole be kept at a freezing temperature, a compound is obtained, which is a nitrate of oxyde of glycyl; this is possessed of the most powerful properties. For use, one drop diluted with ninety-nine of rectified spirit is the proper quantity, so energetic are its properties; of this, give a quarter of a drop in a dessert spoonful of water. In all spasmodic and painful affections, this will give instant relief, it has not been tried in tetanus and hydrophobia. If the pain or spasm be not simply neuralgic, but dependent on some deeper seated cause, it will of course, only act as a palliative. Great caution must be exhibited in its use. (p. 415)

This drug is liable to great variation in strength. Under ordinary circumstances of health and vigour it may be taken in small quantities with safety, but when the nervous energy is diminished by

fatigue or suffering, it may act with the greatest power. Several cases are related in which it relieved neuralgic pain very rapidly. (Mr. A. G. Field, p. 423.)

POISONING BY STRYCHNIA.—A case occurred lately in Boston in which violent tetanic spasms produced by swallowing two grains of strychnia, were completely subdued in ten minutes by the administration of chloroform. The patient recovered rapidly. (Dr. Jewett, p. 360.)

PRESCRIPTIONS *containing Henbane or Belladonna.*—Never in any prescription combine any caustic-fixed alkali with tincture or extract of henbane, as the latter is thereby completely neutralized. Where it is desirable to administer an alkaline remedy with henbane, order either a carbonate or bicarbonate, which are quite as efficacious. The same precautions apply to belladonna and stramonium. (Dr. A. B. Garrod, p. 360.)

STRYCHNIA, *Uses of.*—In cases of organic lesion of the nervous centres, epilepsy, chorea, paralysis agitans, it is useless or even injurious. It is in cases of *functional derangement* where the *nervous powers* are wanting in vigour, where lassitude is a prominent symptom, as in dyspepsia of literary men and delicate females; chlorosis is perhaps the typical disease where it is of most use: if you substitute strychnia for quina in the usual prescription of quinine and iron in this disease, the effects will be truly astonishing. There is a double citrate of iron and strychnia analogous to the well-known preparation of iron and quina, this is particularly applicable; it contains one grain of strychnia in every hundred of the salt. Another convenient way of giving strychnia is to dissolve a grain in two minims of sulphuric acid, and add this to thirty ounces of water in which one drachm of ammonio-citrate of iron has been dissolved; the whole may be then placed in a gazogene and charged with carbonic acid. Give a wineglassful of this daily, immediately before lunch. A very remarkable case of the efficacy of the above is related. (Mr. H. R. De Ricci, p. 49.)

SUPERPHOSPHATE OF IRON.—A syrup of superphosphate of iron is particularly applicable to ricketty and weak children; it is very pleasant to take. It contains five grains of iron and five of phosphate of lime. It may be obtained of Mr. Greenish, New-street, Dorset-square. (Dr. Routh, p. 238.)

PRACTICAL MEDICINE.

DISEASES AFFECTING THE SYSTEM GENERALLY.

Art. 1.—ON LOW FEVER.

By Dr. Thomas King Chambers, Lecturer on the Practice of Medicine at St. Mary's School, and Physician to the Hospital.

[Dr. Chambers, after giving several cases, describes his treatment. He says]

The previous cases I treated on the principle almost universally approved by rational practitioners, of prescribing for the individual and not for the disease. I mean that the poisoned system has a certain circular course to run, whose tendency is to end in health; and that it is the practice (and a good practice too) simply to expect or watch for this course, to support the body under it, and to apply to the prominent phenomena treatment special to each case. Most certainly this *methodus medendi* is absolute; nothing can take its place. But if we can *add* to it some mode of combating the disease as well, some mode by which the course may be shortened or made safer, or the poison deprived of some of its virulence, we are wise to use it. Just as in a case of ague, while you were improving the alvine secretions, or managing some thoracic complication, you would not omit to cinchonize the malarious infection; or as in a case of scabies, while you gave the patient a bath to clean him and ease his misery, you would also kill the cause of his misery with sulphur; or as in a case of rheumatic pericarditis, while you are putting leeches on the chest, you do not forget to try and counteract the rheumatism by large doses of alkalies; so would it in the disease under consideration be extremely desirable to have some treatment directly applicable in every case—directly applicable to the typhus because it was typhus, just as bark is to ague, sulphur to itch, or alkalies to rheumatic fever. Aiming at such a desideratum, I have to these last twelve consecutive patients applied one similar treatment, suggested by the practice of Dr. Mackenzie, and by the results of which I have been so favourably impressed, that I shall continue to use it in every instance of low fever till further notice.

The plan is, first to sponge over once or twice a day the whole body with tepid water, and then to anoint it with sweet oil; secondly, to administer large doses of muriatic acid. In mild cases the acid may

be mixed with the ordinary fever beverage (half an ounce to a jug of barley-water), and the patient be allowed to drink at discretion. But in hospitals we do not get mild cases, and they are too ill generally to take anything not absolutely given them, so I usually order twenty minims in sugar and water every one or two hours.

This treatment seems strictly rational. The management of the skin enables that organ to resume its duties, of arterializing the blood, circulating it through the capillaries, and evacuating the sweat. Then as to the use of acids, that too is justifiable to the physiologist. What blood, when analyzed, comes nearest in its altered proportions to the blood in low fever? Is it not that in scurvy and purpura? There is the same excess of black blood-discs, the same deficiency of neutral salts and organizable lymph. Everybody treats these chronic affections with acids, and why not also an acute affection, which corresponds with them in one point at any rate? As to the particular acids employed, muriatic certainly deserves to be tried before others—first, because it is such a large constituent of the body that it might almost be called a food instead of a medicine; and secondly, because it is such a powerful arrester of the decomposition of animal matters. Pour it into a sewer, and you destroy the miasma. May it not also in the body stop that miasma from poisoning the tissues?

Whatever the explanation may be, I continue to employ the treatment, because in these dozen cases it has been so remarkably successful. I do not mean merely that they have all got well, but also that improvement of some kind or another immediately followed the commencement of the medicine, and was often attributed to it by the patient. Neither have I yet found any obstacle to its use, nor that it has stood in the way of any other remedy which might appear to be wanted, such as leeches, mercury, wine, bark, or food of any kind. When it begins to fail in my hands, I shall let you know.—*Lancet, Jan.* 30, 1858, *p.* 109.

2.—TYPHOID FEVER TREATED WITH ALCOHOLIC STIMULANTS.

Under the care of Dr. Todd, King's College Hospital.

Numerous cases of typhoid fever have been lately in this Hospital, under Dr. Todd's care, which have been treated on an uniform plan, as they all exhibited the same features, and presented the same indications. This treatment consisted in the regular administration of stimulants in small quantities and at short intervals. The success of the treatment has been striking, as, out of a considerable number of cases (estimated by Dr. Whitford, the resident house-physician, at about twenty), only two deaths have occurred, both of them very bad cases, and one evidently hopeless. Detailed notes of these cases would not perhaps possess sufficient variety to compensate for their length: but we subjoin short notices of two cases, with which

Dr. Whitford has been kind enough to supply us, as examples of the progress and treatment of the disease. It will be seen from this that the latter is of the typhoid character; that the strain is, as usual, on the intestines; and that the characteristic indication for treatment is derived from the pulse. It will also be observed how remarkably the rapidity of the pulse diminishes (its volume and tone generally improving) as the stimulant is taken and tolerated.

It is probable that the experience of our country associates is principally of a different and more "sthenic" type of fever: but we believe that in London this typhoid epidemic is nearly universal; and the treatment employed aims, in most cases, at fulfilling the same indications, though perhaps vinous stimulants are usually less liberally used. We shall probably recur to this interesting and important subject.

Case 1. Sarah M., aged 4, was admitted on November 14th. She was first taken ill on November 11th, with irritability, hot and dry skin, constipation, and abdominal tenderness. On admission, she was quite sensible; the skin was hot and dry; a few rose-spots were seen on the abdomen; the bowels were relaxed, and the motions very offensive. There was much tenderness on pressure over the right iliac fossa.

Date.		Pulse.		Stimulants.
Nov. 14	...	130	...	Wine ʒii, every two hours=3 oz.
„ 15	...	140	...	„ „
„ 16	...	140	...	Brandy ʒii, every hour=6 oz.
„ 18	...	120	...	„ „
„ 19	...	120	...	„ „
„ 20	...	120	...	„ „
„ 21	...	120	...	„ „
„ 23	...	92	...	Brandy ʒii, every two hours=3 oz.
„ 25	...	112	...	„ „
„ 27	...	96	...	„ „
„ 30	...	96	...	„ „

Turpentine stupes were applied to the abdomen: these relieved the tenderness, but did not stop the purging. On November 18th, a starch enema, with five minims of laudanum, was ordered. This stopped the purging, which did not recur after the 19th. From this time she steadily improved.

Case 2. Honora H., aged 17, was admitted November 28th. The fever commenced on November 21st, with head-ache and rigors, and then pain in the abdomen. The bowels were much as usual when admitted. She had complete stupor; the countenance was dusky; the tongue was coated with brown fur. A few rose-spots were seen on the abdomen, which was rather tender on pressure. She was ordered, on admission, an ounce and a half of brandy every hour, and the following mixture:—

℞. Spiritûs ætheris chlor. ♏x; ammoniæ carb. gr. iv; mist. acaciæ ℥iss. M. Fiat haustus 4tâ quâque horâ sumendus.

We append a short table of her daily progress, with the variations of pulse and respiration noted. It will be seen how the former gradually improved under the influence of the stimulant (which was regularly persisted in), and how a very severe and threatening attack issued in a complete and rapid recovery.

Date.		Pulse.		Respiration.		Remarks.
Nov. 28	...	104	...		...	
" 29	...	128	...	24	...	
" 30	...	104	...	20	...	Answers questions.
Dec. 1	...	88	...	24	...	Spots faded. Countenance less dusky.
" 2	...	72	...	24	...	Less abdominal tenderness.
" 4	...	72	...		..	Bowels regular. No abdominal tenderness.
" 7	...		...		...	Convalescent.

—*Brit. Med. Journal, Dec.* 26, 1857, *p.* 1059.

3.—*Quinine in Typhoid Fever.* The case was under Dr. Fuller, at St. George's Hospital.—The patient was a little boy, eight years old, who was admitted with well-marked symptoms, but whose previous history was imperfect. He had a very distinct mulberry rash over his body. Ten grains of quinine were ordered the first day every two hours, and the change produced in the general symptoms was positively striking: the pulse came down, his skin was cool and moist, a diarrhœa ceased, and his tongue was moist. As this was the case, Dr. Fuller did not desire to push the large doses (he had taken three only), but continued the medicine in two-grain doses three times a day, with four ounces of wine, and the little fellow is going on well. This is the third case in which this plan of treatment has proved successful in Dr. Fuller's hands; it has been employed elsewhere with great benefit.—*Lancet, Jan.* 23, 1858, *p.* 89.

4.—ON PERIODIC AND ERUPTIVE FEVERS—THEIR NATURE AND PREVENTION.

By Dr. Frederic James Brown, Chatham.

[Speaking of the nature of periodic fevers and of typhoid and typhus fevers, the author offers the following speculative considerations in the form of propositions:—]

First proposition. That enlargement of the spleen precedes or follows the first attack.

The researches of Surgeon Dempster and Major (now Colonel) Baker, in India, show conclusively that splenic enlargement is a direct effect of malarious influence. These researches establish the fact that a large percentage of the inhabitants of malarious districts

present an anatomical element of disease; namely, enlargement of the spleen.

Second proposition. That no poisonous matter is introduced into the blood.

I find periodic fevers arising in damp situations where there is no decaying animal or vegetable matter, therefore I cannot but accept the conclusion that periodic fevers are produced by some other cause than gaseous emanations or poisonous matter in the fluid or solid form, from decaying organic matter. I fully admit that fœtid gases produce an injurious effect upon the human organism; but this question is distinct from the subject under consideration.

The sequence of occurrences in periodic fevers is utterly opposed to our ideas of disease produced by a blood-poison. Take those affections in which a virus is introduced into the blood, such as syphilis and hydrophobia, and compare them with ague. It is true that syphilis presents many remarkable progressions and retrogressions in its course; but the cutaneous eruption, the contagious nature of the disease, and its capability of being propagated by inoculation, and other circumstances, mark a wide separation between this disease, the effect of a blood-poison, and ague, a disease caused by diminished nerve-force. The phenomena witnessed in periodic fevers are wholly different from those seen in diseases that clearly arise from the introduction of animal poison into the blood. With respect to diseases produced by vegetable poisons, I am not aware of the existence of any such. We are acquainted with diseases caused by mineral poisons; but poisons from the vegetable kingdom kill rapidly without inducing a train of symptoms that endure beyond a few days. In other words, the vegetable poisons produce acute toxæmia, whilst the animal and mineral poisons give rise to acute, subacute, or chronic toxæmia.

Another argument in opposition to the idea that periodic fevers are due to blood-poisons, is as follows:—A man may contract ague in Essex, may go to Edinhurgh (where there is no endemic malarious disease), may remain free from ague for a year or more, and be affected by the disease on the occurrence of a cold wet day in spring. This is a series of occurrences never observed in any disease that is proved to be due to virus.

Third proposition. That damp earth is necessary to the production of periodic fevers.

Damp must be in connection with soil for the production of these fevers. The damp decks of a ship will not originate this form of fever, although a recurrence of fever may take place from this cause. It may be objected to this proposition, that the bogs of Ireland have no influence in producing ague. It is true that the Irish bogs do constitute a remarkable exception. I put forth the hypothesis that the peat acts as a nervine tonic, and so enables the individuals residing on the damp land to bear the loss of an abnormal amount of electricity with impunity.

Fourth proposition. That periodic fevers are due to telluric causes, viz., the abstraction of positive electricity from the human body by induction, in abnormal quantity, through the agency of damp earth.

The fact is well ascertained that positive electricity is removed in abnormal quantity under the circumstances just enunciated. The order of sequences I give hypothetically. Abstraction of positive electricity in undue proportion; disordered function of the sympathetic nervous system; changes in the constitution of the blood, viz., first, hyperinosis; finally, leukæmia; changes in the condition of the spleen and liver.

It may be objected to this proposition, that the lower animals grazing on damp land should experience the same ill effects as man.

I attribute the immunity of the lower animals to the natural clothing of hair and wool that they possess, which preserves the equable temperature of their bodies and acts as a non-conductor of electricity. It is certainly an extraordinary circumstance that the lower animals should enjoy immunity from periodic fevers, but it is a fact. It is equally certain that the drainage of marshes and the diminution of cases of ague in a malarious district bear a direct ratio to one another. Hippocrates banished periodic fevers from the city of Abydos by causing the marshes in its vicinity to be drained; and I believe that London might be similarly freed from malarious diseases. In my opinion, convict labour might be beneficially employed in the drainage of the marshes bordering the Thames and the Medway. In this way, men that offend a civilised community might make reparation for their faults. Dr. Handfield Jones has drawn up a list of about a score of diseases allied to ague, such as neuralgia, certain forms of rheumatism, neurosis of the nervus vagus and solar plexus. All these diseases will disappear when we bring the *will* to bear upon them. The people have the *power*; they only want the *knowledge* and the *will*. It is for us to supply the knowledge and to stimulate the will.

I have next to inquire into the nature of typhoid and typhus fevers. I will premise by a few remarks on pyrexia in its most extended signification. Pyrexia consists in an augmented temperature of the skin, due to an augmented cremation of the tissues of the body. The increased temperature of the skin can be measured by the thermometer, and it is found even during the stage of rigors. Pyrexia attendant upon inflammation I believe to be due to changes in the condition of the sympathetic nervous system, and to changes in the constitution of the blood, and to alteration in the condition of the tissues. Catarrhal and biliary pyrexia I attribute to similar changes, arising from arrested or altered secretions. Typhoid fever I believe to be caused by the application to the alimentary canal of the excreta of the intestines that have undergone alterations outside of the body. The sequence of occurrences is as follows:—Fæcal matters (altered in their nature) are swallowed in water in almost all towns,

and even in lone houses in the country, in consequence of the proximity of wells to privies and drains: blood-poisoning and disordered sympathetic nerve-force result: the skin and the glands of the small intestine become affected: and the disease known as typhoid fever is produced, having a duration of from fourteen to twenty-eight days. Typhoid is essentially a privy-soil fever, but night-soil can give rise to other diseases beside typhoid fever, viz., cholera, diarrhœa, and dysentery.

I now proceed to consider the nature of typhus fever. I believe that typhus is produced by the respiring of air charged with a larger per centage than usual of animal extractive matter present in the expired air. The excretory matter from the lungs and skin, when respired in a concentrated state, as occurs in over-crowded apartments, give rise to typhus fever, which has a duration of fourteen days, and which expends its force on the lungs and cerebro-spinal system. Typhus is thus an ochletic disease, or, in other words, a disease caused by over-crowding, and is essentially distinct from typhoid fever.

An interesting experiment was performed, a short time since, on the continent. An animal extractive matter was obtained from the respiratory and cutaneous excreta of numerous individuals congregated in one apartment. This extractive matter was injected into the blood of a dog. The animal died of low fever in fourteen days.

Now, it will be observed that fourteen days constitute the full period of typhus fever. If this experiment shall be repeated many times with the same result, I shall deem the matter to be demonstrated.

That overcrowding is the cause of typhus fever, is further shown by the occurrence of this form of fever in jails, barracks, and the habitations of the poor in large cities. Civic populations usually suffer from both typhoid and typhus fever, because of the contamination of the water and the overcrowding of the inhabitants; but in towns occupying much space in proportion to population typhus bears a small ratio to typhoid fever. This is the case with Rochester and Chatham, as I showed in a paper read at the Epidemiological Society in April, 1855.

In the third part of this paper, I beg leave to point out the measures necessary for the prevention of the fevers that we have been considering. Marshes must be drained; but until this can be effected the inhabitants of paludal districts should take a daily dose of quinine, and should wear flannel clothing and a non-conducting material within their boots. The conversion of marshes into bogs might prevent ague (could it be effected by the cultivation of the plants found on bogs or by other means), but it would not meet with the approval of agriculturists and graziers; therefore drainage is the only practicable mode for the conversion of marshes into salubrious ground. Then as to the prevention of typhoid fever; this can only be obtained by a pure water supply from a source distant from towns, and by effective

sewerage. The prevention of typhus would be certain if abundant space were included within the area of towns, together with an improved construction of houses and free ventilation. Our public buildings, such as hospitals and union houses, should be built after the model of the hospital at Bordeaux and that lately in use at Renkioi. Ancient Rome suffered from periodic fevers, because of the proximity of the Pontine marshes; and she probably suffered from typhus in consequence of the enormous population within her walls; but I should imagine that she was free from typhoid fever because of the purity of the water supplied by her magnificent aqueduct, and the effective sewerage that was employed.

Before concluding this paper, I wish to remark that bad smells will not produce typhoid fever, under ordinary circumstances, although they cause nausea and depress the general powers of life. But now and then it occurs that the opening of privies long closed is directly followed by typhoid fever of a malignant type. Such an instance occurred in Rochester several years since. I believe that in these instances the fæcal matters (altered in quality) are actually swallowed with the saliva,—minute particles impinging on the pharynx, and being thus conveyed to the lining membrane of the alimentary canal. —*British Medical Journal, Feb.* 27, 1858, *p.* 165.

5.—*Acute Articular Rheumatism.*—Dr. Hauschka recommends, as the best means of abbreviating the duration of acute articular rheumatism, the administration of large doses of iodide of potassium in conjunction with morphia. He gives in the course of the day from 15 grains to 4 scruples of the iodide, with from ½ to 1 grain of morphia. He never has recourse to local treatment when the rheumatism is polyarticular.—*Rév. Méd. Oct. p.* 439.—*Med. Times and Gazette, Nov.* 14, 1857, *p.* 511.

6.—*Treatment of Acute Rheumatism.*—Dr. Gordon states that after trying the various remedies for this disease, he finds the following treatment that which is best adapted for preventing its passing into a lingering state:—"After having procured free evacuation by means of senna and salts, I begin the administration of equal parts of vin. colch. and spts. tereb. in doses of 10 drops every two or three hours. After a day or two, I give in connexion with these (only at different intervals, say of five hours each), tr. ferri chlor. 10 drops, using as much opium as may be necessary to quiet pain. I also allow a free use of infusion of coffee, of average strength. If the patient's appetite remain I allow a moderate use of his usual food at the customary intervals."—*Boston Journal.—Med. Times and Gazette, Jan.* 9, 1858, *p.* 44.

7.—ON THE NATURE AND TREATMENT OF CANCER.

By C. SOUTHAM, Esq., Surgeon to the Manchester Royal Infirmary.

The conditions essential to the production of cancer, are partly constitutional and partly local; the constitutional leading to the development of the cancerous element in the blood, by interference with the functions which preserve this fluid in its healthy state; the local separating the morbid material thus produced, and transforming it into cancerous deposit, which replaces, or becomes incorporated with, the proper textures of the part. Neither of these conditions *alone* can develope the disease. A blow or injury cannot of itself produce it; nor can perverted nutrition of a part from any other cause, unless the cancerous element exists in the system. But when this element is in excess, it is sufficient of itself to cause the local affection; as, for instance, in disseminated cancer: indeed, from the course this variety takes, it would appear that injury is not so frequently the exciting cause as is generally supposed, the disease not necessarily following injuries in persons so affected.

As regards the tissues which may be affected by cancer, it is obvious that it may be deposited wherever nutrition is in progress; and, consequently, no organised texture is exempt from its ravages.

It is now generally acknowledged that its earliest condition is that of a blastema or fluid, which Virchow (*Archiv*, B. 1, viii) and Vogel (*Path. Anat.* p. 565) describe as consisting of a firm, compact, amorphous substance, similar to coagulated fibrine, sometimes containing molecular granules of modified protein or fat—characters not materially differing from the blastema of the natural tissues and other formations. In this blastema, cells are developed, supposed by Lebert, Robin, Harover, Paget, Druitt, and others, to be of a specific nature. Frequently, no doubt, they present appearances which differ from those of the healthy tissues; the cell-wall and its nuclei, nucleoli, and granules, being usually larger. They are also more varied in form, in some cases being round or oval, in others caudate or elongated. The cell-wall is extremely thin and pale, and, when submitted to the action of dilute acetic acid, is so transparent as to display the nucleus and its nucleoli distinctly. In the blastema, granules are also found, as well as numerous nuclei and nucleoli, destitute of any distinct cell-wall. The cells are said to be endowed with amazing reproductive powers, each being supposed to produce, either by fissure or from its nuclei, a second; the granules which the cells and blastema contain also becoming nucleoli, and ultimately parent cells. A fibrous tissue or stroma may also be developed from the blastema, in some cases forming the principal portion of the deposit. It is as yet undetermined whether this stroma is formed directly from the blastema or from the cells; possibly the the latter is the transition stage. Nor does it present any peculiarities by which it can be distinguished from condensed or indurated

areolar tissue of other parts, except, perhaps, in the arrangement of its filaments; consequently, it is supposed by some not to be a new formation. But it is difficult to comprehend how it should constitute the chief portion of some varieties of cancer (scirrhus), without regarding it in this light: indeed. it would seem to indicate that the cell is still capable of undergoing further development—a view which is confirmed by this form of deposit being usually characteristic of malignant tumours of slow growth; whilst the cellular variety is peculiar to those of rapid formation, probably from the developmental power being destroyed, in consequence of the blood being more highly impregnated with the disease.

As regards the speciality of the cancer-cell, it is questionable how far this can be admitted. Compare it with the transitional epithelia of the different membranes of the body, or many of the gland-cells, or with the fibro-plastic cells of some innocent tumours; and there will appear numerous instances of similarity, as will prove this mode of diagnosticating malignant growths to be most unsatisfactory and delusive. Indeed, its most experienced advocates have given numerous proofs of their inability to apply this test to practice. I need only refer to the works of Nélaton (*Clin. Surg.*, Philad. 1855, p. 457), and Velpeau (*loc. cit.* p. 21), to show that tumours, which run their course and terminate in precisely the same way as cancer, have, under the scrutinising examination of Lebert and Robin, been found destitute of the specific cell; whilst M. Mandl, another experienced histologist, asserts that he has met with the same form of cells in healthy lung. Further, in osteoid and fibrous cancer, there is a general absence of cells, or they are so few in number as often not to be discernible.

There appears, then, no reason to regard the cells found in cancerous growths other than as the ordinary ones formed for the development of healthy tissue, which have taken on an abnormal character, in consequence of the blastema derived from the blood for the nutrition of the part being in a diseased state. Their subsequent development is under some specific influence, which, in cancer, as in other morbid growths of constitutional origin, exerts its effects in various degrees, according to its interference with the vital powers. Thus, the blastema of tubercle may be said to be almost destitute of vitality, and therefore incapable of development; and either generates into imperfect pus, or undergoes some chemical conversion. But cancerous blastema, being more highly organised, may be transformed into caudate or fibro-plastic cells, with their nuclei and granules; and these may merely reproduce others similar to themselves, or they may go beyond this, and manifest themselves as imperfectly formed fibrous tissues—the cancerous stroma. The new formation in either case has, however, only a *temporary existence;* for, after having arrived at a certain degree of perfection, it almost invariably degenerates.

On the other hand, in the absence of these specific influences, as in

the ordinary effused lymph of inflammation or of healthy granulations, the cell is endowed with the power of progressive development, passing from the fibro-plastic cell into filamentous tissue, which finally assumes and *retains* all the characters of the healthy elementary structures in which its blastema was originally generated.

But, though we can ascribe no special features to the cells found in cancer, the microscope has furnished us with much valuable information respecting the nature of tumours generally. Whilst it has shown that the primary elements of all morbid growths do not materially differ from those of the normal tissues, it has also shown that these constituents vary in the degree of their development, in their mode of arrangement, and in their relative proportion to each other; that, in innocent tumours, the difference is slight, whilst in malignant ones it is more marked; the higher degrees of malignancy being characterised by a general want of order in the distribution both of their primary elements and the more perfect structures entering into their composition; which, when accompanied by the presence of an opaque milky or cream-like fluid, yielded by the deposit when submitted to pressure, may perhaps be regarded as the most characteristic pathological signs of cancer.

The microscope, likewise, has enabled us to arrange the various forms of the disease into three groups, according to the preponderance of their primary elements. One group is marked by an excess of blastema, constituting gelatiniform or colloid cancer; another, by an excess of cells, forming cephaloma, medullary or soft cancer; a third, by a fibrous tissue—scirrhus, petrous or hard cancer. These may occur separately, or they may all be present in different parts of the body at the same time, or in the same tumour, each form either remaining distinct, or passing so imperceptibly into the other that it is sometimes difficult to decide to which particular group the disease belongs. The other varieties met with are merely modifications of these, arising from some of the constituents of the body, more or less altered in structure and quantity, being incorporated with them, or from degeneration of the cancerous deposit.

Thus, in hæmatoid cancer—fungus hæmatodes—there is an excess of blood, either free or enclosed in vessels; in melanosis, a superabundance of colouring matter, or pigment contained within cells: in osteoid cancer—the spina ventosa of the older surgeons—of osseous tissue: and in cancroid or epithelial cancer, an excess of epithelial and other cells; whilst, from the degeneration of the morbid material, fat-globules may be infiltrated through the deposit, producing lardaceous or reticular cancer: or it may become converted into calcareous matter; or atrophy may ensue, causing the peculiar cicatriform contractions (Wedl's *Pathology*, Syd. edition, p. 535) sometimes observed in senile cancer.

By the same method of investigation, important information has been obtained respecting the manner in which the morbid material is

deposited in the various tissues of the body. It is well known that its tendency is to infiltrate or diffuse itself amongst the different tissues; but the mode of extension, and the effect it produces on the original textures, have only recently been satisfactorily explained, and mainly through the exertions of Virchow ('British and Foreign Med.-Chir. Review,' 1855, p. 391.) He has shown that the local changes are not limited to the parts which are the seat of the deposit, but that the surrounding structures, which appear to the naked eye perfectly sound, are also involved. These, when examined with the microscope, are found to be infiltrated with innumerable small cells, gradually increasing in size, and collecting in larger and more numerous groups the nearer they approach the swelling, and, in advanced stages of the affection, sometimes penetrating to a considerable distance into the surrounding parts. The cells and granules extend themselves chiefly along the areolar tissue, and ultimately into the tissue itself, and even into the nerves and coats of the blood-vessels, the normal nutrition of which being interfered with, atrophy of these structures ensues, and their place is supplied with true cancerous deposit. There appears to be, therefore, no transformation of the natural structures into cancer. Either they are absorbed, or they become incorporated with the disease, where they may remain as healthy tissue, provided the blastema is not so completely impregnated with cancerous material as to deprive it of all power of regenerating the original structures ('Paget's Surgical Pathology,' vol. ii. p. 561.)

I have alluded to certain fibro-plastic tumours which present during their progress several of the clinical signs of carcinoma, but which pathologists consider to be innocent growths, because they do not agree in their minute anatomical characters with cancer. For a similar reason the terms "cancroid" and epithcloma" have been applied to a group of diseases affecting structures covered by epithelia, which have usually been considered carcinomatous. But it is only in the form of cells which enter into their composition that any ground exists for considering them as distinct affections; for they possess, though in a less marked degree, all the other peculiarities of malignancy. The tessellated and scaly cells of "cancroid" growths appear to be epithelia arrested or altered in their growth by disease, just as the cells of other forms of cancer are formed from the diseased state of the cells which should enter into the composition of other healthy structures. In all other respects they resemble carcinoma, infiltrating themselves in the tissues, reappearing after removal, taking on ulcerated action, and ultimately destroying life through the general infection of the system. It is true, they manifest their effects on the system more slowly than cancer of other parts, and that their local changes are also more protracted; but is there nothing in the condition of the skin and mucous surfaces to account for these peculiarities? Do we not find that several other diseases of these parts are extremely slow in their progress—that lepra, psoriasis, and lupus, may affect an

extensive surface of the skin for years; that suppuration and superficial ulcers of mucous membranes may continue for a length of time, without impairing the general health? The entire skin, as an excretory organ, performs functions almost as important as any emunctory of the body; but a large portion of it may remain inactive without causing any serious derangement to the health. Not so the other organs, which are so limited in size that any interruption to their functions soon leads to marked derangement of the system.

Cancroid growths certainly bear removal better than cancer generally; but is not this due to their chronic character? And their disposition to return at the original seat, or in its immediate vicinity, which some adduce in proof of their local origin, is entirely in accordance with what follows the removal of other malignant tumours, extirpated under similar circumstances. Thus. when bone or the breast is the seat of cancer, if the diseased part only be removed, the affection almost invariably returns in the portion that has been left.

Nor is their tendency to reappear only in the situation of the original disease so general as some have supposed. So long as the system is only slightly affected, they may confine themselves to a particular locality; but when the constitution shows marked contamination, secondary deposits will be frequently found in other parts. In this respect, they follow the same course as cancer of bone or cellular tissue, both of which generally attack only analogous tissues and parts in the immediate vicinity of the original disease, until the general infection of the system becomes complete, when they extend their ravages to other structures and localities.

But it has been asserted that cancroid and epitheloma not only differ essentially in their primary elements from other forms of cancer, but, says Nélaton, "they never in their progress produce that profound alteration of the organism known as the cancerous cachexia." ('Clinical Surgery,' p. 471.) This statement is evidently not borne out by clinical observation. Within the last few months, three cases have come under my own notice disproving this. In one, the patient had suffered from cancer of the nipple for upwards of ten years, and has had marked cachexia and sallow countenance for several months past. The same symptoms appeared in another person, from whose lip, twelve months previously, I had removed an epithelial cancer; and also in a man who had been suffering from the same disease for upwards of four years. I have seen two other cases bearing on this question; one of a female with scirrhous mamma, from whom, five years previously to its development, I removed a cancerous ulcer from the cheek; in the other, there was epithelial cancer of the anus, coexisting with scirrhus of the prostate. Rokitansky, Velpeau, and Paget, have also recorded similar cases.

Further, these affections agree in their minute anatomical characters with carcinomatous growths, portions of their tessellated scales and cells being irregularly dispersed through the proper tissues of the

skin, mucous membranes, or other parts covered by epithelia, replacing or variously changing their natural structures; and according as the deposit is situated in an equal degree in all the tissues entering into the composition of these parts, or is in excess in the papillæ and epidermis, or in the subintegumental tissues, so the disease will present variable characters, of which the ordinary cancer of the lower lip may be regarded as the type of the first form; cauliflower excrescence and villous cancer, of the second, or the papillary and epidermoid infitrations; and the deep-seated flat or rounded tubercle, which gives olrigin to rodent ulcer, of the last. Indeed, the distinction between innocent and malignant structures, as regards their minute anatomical characters, can nowhere be better studied than in epitheliomatous growths; for, in the common warty, papillary, and condylomatous tumours, where the enlargement, whether from abnormal increase of the epithelium, epidermis, or papilla, is simply the result of hypertrophy, or from infiltration of the parts with inflammatory products, the different structures, instead of presenting a confused arrangement, preserve their natural relation to each other; the epithelial deposit, the scales of which are unchanged by disease, consequently not lying within, but upon, their surface.

I can only very briefly allude to the other kinds of doubtful growths in connexion with that important subject, the degeneration of innocent tumours. It was formerly considered that all innocent growths were extremely prone to become cancerous; but, for some years past, pathologists have taught that, if a growth is malignant, it must have been so from its commencement, and that a perfectly innocent one never becomes cancerous. This view is undoubtedly correct in the *majority* of cases, but instances occasionally occur where it is not verified. Take for example the most simple form of growths.

Sir Astley Cooper's experience led him to infer that a fatty tumour may sometimes take on malignant action. Brodie inclines also to the same opinion, and, in support of it, gives the particulars of a case which came under his own observation ('Lectures on Pathology and Surgery,' 1846, p. 282.) Simple cysts may become cancerous, but perhaps less frequently than is generally supposed; for the fungosities which are found in their interior are more frequently the result of inflammatory action than of any constitutional cause. It is in the ovaries they are met with most frequently; and, when accompanied by cachectic symptoms, their cancerous nature seems to be confirmed. But the cachexia more probably arises from imperfect nutrition, caused by pressure of the tumour on the surrounding parts, than from any general infection of the system. Cysts, however, do become the seat of cancer; a well marked case of this kind came under my notice three years ago, where a simple cyst, which had existed some years in the mamma, became cancerous, as well as the surrounding structures; and there is now amongst the out-patients of the Manchester Infirmary a female, under the care of Mr. F. Heath, where a

malignant tumour of the face, attended with the usual constitutional symptoms, originated in a simple cyst, which had existed for twenty-eight years. Cartilaginous tumours are well known to contain occasionally cancerous material; and warty growths of the skin are said to be frequently the earliest evidences of epithelial cancer. Several of the fibro-plastic tumours to which I have alluded must also be admitted to be either innocent growths which have subsequently assumed a malignant character, or that pathological data are too imperfect to enable us to distinguish between the two diseases in their earliest stages.

On the other hand, the two varieties of tumours are sometimes found in the same person, quite unconnected with each other. Thus, females with fibroid tumours of the uterus are occasionally found to be affected with cancer of the os and cervix. Chronic mammary tumour may occur with cancer of the same part, each disease remaining distinct from the other, of which Mr. Paget has recorded three well marked instances. Warty growths of the skin I have frequently known to have remained quiescent in persons suffering from cancer in their immediate vicinity. Still it must be admitted that innocent tumours may sometimes become cancerous, but not from transformation of their structure. the morbid material being incorporated with it as it is with the other tissues of the body. They, however, seem less liable to its ravages than the healthy structures; and the cancerous diathesis, though it may in no way have contributed to their original formation, must be first developed before they can become affected.—*British Medical Journal, Jan.* 2, 1858, *p.* 5.

8.—ON THE ESCHAROTIC TREATMENT OF CANCER.

By JAMES SYME, Esq., Prof. of Clinical Surgery in the University of Edinburgh.

It has long been a settled principle in surgical practice, that malignant tumours or sores should be either allowed to remain free from disturbance or completely removed, since tampering with them by irritating applications is the most certain means of exciting disease in the lymphatic glands or other textures. But the procedure advocated by the Middlesex surgeons was the most extreme degree of deviation from this rule, since it kept the local disease, together with the patient's system, in a perpetual fret for many weeks; so that no one need be surprised at the effects, which, indeed, these gentlemen thus admit:—"Nothing could be more disastrous than this case; and there is no reasonable doubt that the tumultuous increase of the disease was directly owing to the local treatment." If caustic is ever used for destroying malignant textures, it should, therefore, be of such power and so employed as to strike at once to the root of the evil, and I am able to suggest efficient means for this purpose.

Mons. Velpeau, in speaking of the caustic made by mixing sulphuric acid with saffron, expresses his persuasion that it would be the best of all escharotics except for its expense and the difficulty of confining its action within certain limits. It occurred to me that sawdust would supply the place of saffron, and my assistants at the hospital ingeniously devised the following effectual means of restraining the extent of action. A solution of gutta percha in chloroform is applied to the skin for some distance round the part to be attacked; then a thick piece of the same material, with an aperture cut in it of the requisite size, and softened by exposure to heat, is pressed firmly so as to adhere everywhere to the surface thus prepared; a thin piece is next glued round the edge of the opening, so that, when supported by a stuffing of lint, it may form a wall enclosing the diseased part. Concentrated sulphuric acid, with about an equal weight of sawdust stirred into it, until the mixture assumes a homogeneous consistence equal to that of thin porridge, is lastly applied, in quantity proportioned to the extent of thickness concerned. In the first instance, as the pain is acute, opiates or chloroform may be used; but after a short while, so little uneasiness is felt, that the patient can easily allow the caustic to remain for ten or twelve hours, when it will be found that the whole diseased mass, though covered with skin and several inches in depth, has been reduced to a cinder, presenting the appearance of strongly compressed tow. Under poultices, the slough separates in the course of days or weeks, according to its depth, and the sore then heals without any trouble. If, therefore, patients, from an unconquerable dread of cutting, should prefer the escharotic treatment, or if the circumstances, on any other account, should seem to render this method eligible, the procedure just described may be found useful.

In conclusion, I beg to offer the following principles or practical rules for the treatment of cancer.

1. The treatment of cancer may be divided into curative and palliative.

2. The curative treatment should not be undertaken when the local disease is so seated or connected as to prevent its complete removal; when the lymphatic glands are affected; and when the patient's general health is deranged.

3. Removal may be accomplished by means of the knife, escharotics, and ligatures.

4. Of these means, in general the knife is best, and ligatures the worst.

5. Escharotics may be used with most advantage when the disease is superficial.

6. Escharotics, employed with a curative view, should always destroy the whole morbid part by one application.

7. The palliative treatment is generally best accomplished by means of soothing applications and attention to the general health.

8. When the local disease is very troublesome, it may sometimes be relieved for a time by destruction of the morbid growth.

9. The best agent for this purpose, and also with a curative view, is concentrated sulphuric acid properly applied.—*Edinb. Med. Journal, Nov.* 1857, *p.* 388.

9.—ON THE PAINLESS EXTIRPATION OF CANCEROUS GROWTHS.

By Dr. James Arnott.

[In the combination of long-continued congelation with caustic, we have a means of speedily extirpating cancerous growths, unattended with pain, and producing neither shock, inflammation, nor permanent debility. This mode of treatment has been fully tried in the cancer wards of the Middlesex Hospital, and it is the results of the experience there gained, which is contained in the following paper.]

My first and principal object was to show that cancerous growths may not only be extirpated by congelation and caustic, without pain, but if not absolutely without danger, with much less danger than accompanies the means usually employed for this purpose. This was satisfactorily fulfilled by the following case, which was watched by the surgical staff and students of the hospital. and seen by several eminent surgeons unconnected with that institution.

On the 28th of November, at noon, Sarah H., No. 1, Laffan Ward, had a circular portion of the right breast, three inches and a-half in diameter, and enclosing a large occult cancerous tumour, congealed for two hours by a frigorific mixture, at a temperature ranging from 8 to 12 degrees below zero Fahr. This mixture, which was frequently renewed, was confined to the part by a cup or broad flat ring of gutta-percha, having a short flexible tube, closed by a stopcock, issuing from its lower border. Immediately after removing the mixture, nitric acid was applied to the skin, and after the acid a thin layer of chloride of zinc paste was placed on it, and allowed to remain until the next day. There was no expression of pain made during or after these proceedings, but being questioned on the subject, the patient stated that for about five minutes, while the congelation was being effected, there was a sensation of tingling like that produced by a mustard plaster. The uneasiness from this was not sufficient to interrupt her account of the origin and progress of the disease, which I had requested her to give just as the congealing process commenced. This tingling of short duration was the only disagreeable feeling experienced during the day. She took her usual dinner while the congelation continued, and slept well during the night. It is proper, however, to relate that previously to the application of the strong frigorific mixture, I had taken pains to benumb the part very gradu [illegible] its removal another refrigerating mixture was

applied for about eight hours over the chloride of zinc, but kept separate from it by a very thin intervening membrane.

By the middle of next day, a large white slough or eschar had been produced by the combined measures, of exactly the dimensions of the lower opening of the gutta percha vessel, which (from having been previously heated) had adhered firmly to the breast till midnight. For the purpose of ascertaining the extent of the disorganization, the slough was cut in the presence of the resident medical officers to the depth of an inch without causing the least sensation. No inflammation followed, nor did any redness appear at the margin of the slough till the third day, when its separation had probably commenced. Notwithstanding the continued action of the caustic (which was daily inserted in the manner practiced by the French) the patient's general health remained undisturbed until she left the hospital. The lower part of the eschar separated on the 21st December, and when I last saw her at her own residence on the 7th of January the cicatrisation was nearly complete. As her appetite had remained good during the whole of this period, and she had been able to take exercise in the open air, her strength continued unreduced. There had been no occasion to have recourse to cold again for its anæsthetic effects, and the only medicine taken by her during her stay in the hospital was two laxative pills.

I have not considered it necessary to describe minutely more than the first stage of the treatment; for, as my principal purpose was to show that the dreadful pain produced by caustic can be certainly prevented while its action is much promoted, and the hazardous use of the knife superseded by a comparatively safe measure, a report restricted to that part of the treatment in which the suffering has always been the most acute and the inflammation greatest, would have been sufficient. Whether it proceeded from the deep and lasting preliminary congelation, or from her not having been rendered morbidly sensitive by the very severe suffering that has usually ushered in the treatment by caustic, the patient hardly felt what could be termed pain during the whole period—except on one occasion, when a little of the chloride of zinc paste spread from the slough to the adjoining sound skin.

The absence of all inflammation, excepting that slight degree which is necessary for the separation of the slough, is as remarkable a circumstance in the above case as the absence of pain, and, in respect to danger is, perhaps, still more important. I have on several occasions endeavoured to draw the attention of surgeons to the important fact, that congelation judiciously employed often constitutes an unfailing preventive of inflammation; but no evidence of this can be more satisfactory than a statement recently made by Dr. V. Pettigrew, and reported in the 'Medical Times and Gazette' of the 5th Dec., 1857. So completely is all injurious or excessive inflammation prevented by intense cold in incised wounds, that of ninety-three

operations performed by him under it, and of which ninety were perfectly painless, only one did not heal by the first intention when this was desired.

Questions of considerable importance as respects the removal of growths by congelation and caustic are, whether one shough should be allowed to separate by the natural process before another is formed; whether a fresh slough should be made under a previous one; or, finally, whether the sloughs produced should be removed by some mechanical or chemical means, in order to give these combined measures ready access to the living parts beneath. Each of these plans may be the most appropriate to certain cases. The first is the most tedious, unless a very powerful and deeply operating combination of these agents be employed, and in that case there is danger of the destruction of texture extending too far. The making of incisions in the slough for the insertion of caustic has been practised for the last fifteen years by M. Girouard, a physician at Chartrés, though it is uncertain whether Canquoin, the celebrated cancer-curer, did not precede him in the use of a similar method. The surgeons of the Hospital at Chartrés sometimes burn holes with cylinders of caustic potash and lime, into which they insert pieces of chloride of zinc paste; and, more lately, caustic has been inserted deep in the flesh, either by previously puncturing the part with a knife, (the practice of M. Maisonneuve), or by injecting liquid caustic through a capillary tube.

When perfected the third plan will probably be the best. The slough formed by intense cold could be easily removed by bent scissors, and under congelation, without uneasiness. Still softer, and more easily removable, is the slough produced by alkaline caustics, and the objections to them hitherto may be obviated by using the gutta-percha cup in their application. They are thus prevented from spreading, and any hemorrhage produced by them can be immediately checked by chloride of zinc, or by extreme cold alone. The contrivance of the cup will also enable us to soften or dissolve the harder eschars formed by the mineral acids or metallic salts. I am now engaged in investigating this subject.—*Med. Times and Gaz., Jan.* 23, 1858, *p.* 83

10.—*Disappearance of Cancer of the Tongue.*—Amongst several cases of cancer of the tongue which we occasionally noticed at the Cancer Hospital was one of a man, aged fifty-eight, Louis B——, who became a patient in July last. At that time the organ was much enlarged, of an irregularly mottled colour, with red and purplish discolorations here and there, and superficially ulcerated in two or three places. We watched this man very carefully, to see the effects of the treatment employed; and on the 3rd of November were agreeably surprised to find that a very great improvement had taken place. We at first scarcely recognised him, from the cheerful look which had replaced the former anxiety consequent on his sufferings. The

tongue had diminished in size to something like its natural form, and had lost a good deal of the peculiar appearance it had previously presented. He could eat with more comfort, digested his food well, and was gaining flesh and strength. All this has been effected by careful attention to diet and tonic remedies, together with the local application of the powdered sulphate of copper; upon which plan of treatment we have on a previous occasion dwelt. He is now and has lately been using a mild borax lotion, with the occasional use of powdered sulphate of copper. We heard Dr. Marsden say that he thought the man would be well in another three months, a prediction which we fully expect to see realised. This however will not be the first case which we have seen leave this hospital, not merely relieved, but with complete healing up of the disease.—*Lancet, Dec.* 12, 1857, *p.* 602.

11.—*Chlorate of Potash in Scurvy.* [Mr. CORNER, the Resident Medical Officer, on board the Dreadnought Hospital Ship, always relies upon the chlorate of potash in scurvy.]

It had the effect, he stated, of curing the sponginess of the gums much more rapidly than could be done by any other treatment. He had never given it excepting with lime-juice, &c. at the same time; and the proof he relied on was, that in cases treated without it, and by the latter means only, the gums got well much more slowly. The speedy restoration of a sound state of gums is of course of great importance, since it enables the patient to take food much better. Mr. Corner's fact is one of great importance, since it goes to establish the assertion that the chlorate is curative of all inflammations of the mouth and gums, whatever their cause, syphilitic and cancerous affections alone excepted. It will cure follicular, ulcerative, and phagedænic forms of stomatitis like a charm, and perhaps even true cancrum oris if taken early; in hæmorrhagic purpura, although it has no influence whatever on the disease itself, it will harden the gums and prevent their bleeding; it is a speedy remedy in mercurial ptyalism; and now we may add the spongy gums of scurvy to the list of mouth affections over which its spell has potency.—*Med. Times and Gazette, Nov.* 7, 1857, *p.* 476.

DISEASES OF THE NERVOUS SYSTEM.

12.—ON THE PHENOMENA OF SPINAL IRRITATION, AND OTHER FUNCTIONAL DISEASES OF THE NERVOUS SYSTEM.

By Dr. THOMAS INMAN, Lecturer on the Practice of Medicine at the Liverpool Royal Infirmary School of Medicine.

The prevailing idea in Dr. Inman's mind on the subject of the painful affections in question is, that they are due to some morbid

condition of the muscles rather than of the nerves, and that the so-called spinal disorders originate most commonly in a feeble and painful affection of the muscles of the back. He records numerous cases in which these affections having been mistaken for symptoms of inflammation, were treated by depletory measures, and rendered worse in consequence, and in which a due amount of rest to the over-strained muscles, with good diet, effected a speedy cure. Passing from the painful affections of muscles in general to those of the spine in particular, Dr. Inman considers that most of the cases of spinal irritation are really owing to causes originating in the muscles, and that they ought to be treated generally by sustaining the health, giving repose to the affected muscles, and assisting their action, when necessary, by well-contrived artificial supports. Dr. Inman, like Dr. Walshe, does not condemn the use of stays as an article of female dress, but considers them as rather beneficial in aiding the action of the muscles in preserving the equilibrium of the spinal column. The reference of such cases to the general phenomena of hysteria is condemned by Dr. Inman as unphilosophical, and the necessary connexion between hysteria and disorders of the uterus is also called in question. Dr. Inman's views of the nature of spinal irritation are summed up in the following recapitulation:—"We believe that the vast majority of the symptoms considered as the result of spinal irritation arise from over-exertion of one or more portions of the muscular system in debilitated subjects. That the spinal tenderness has a similar origin, and that the other symptoms considered as *resulting from* spinal tenderness, are *concomitants only*, and referable to a common cause."—*Med. Times and Gazette, Jan.* 2, 1858, *p.* 17.

13.—ON HEMIPLEGIA DEPENDENT ON ATROPHIC CEREBRAL SOFTENING.

By Dr. R. B. TODD, Physician to King's College Hospital.

[In the case which is the text of this lecture, there is hemiplegia of the right side. Five years' previously she had very complete hemiplegic paralysis on the other side, from which she completely recovered. The present attack came on suddenly, and was accompanied by insensibility.]

On the admission of this patient there was complete paralysis, as regards voluntary motion, of the muscles of the right side of the body; indeed, it is rare to meet with a case of hemiplegia more complete than this had been, for no reflex actions could be induced by tickling the sole of the foot, except occasionally, when we succeeded in exciting a slight action in one or two muscles connected with the great toe. The muscles of the paralysed limbs were all perfectly flaccid and relaxed: the mouth was slightly drawn to the left side; the tongue, when protruded, diverged somewhat towards the right side; the patient could

see and hear well; the pupils were equal; there was no headache, but, as I before mentioned, a systolic bellows-sound was audible over the base of the heart.

Let me impress upon you the importance of observing and noting in your record in all cases of hemiplegia the condition of the muscles of the paralysed limbs. You should always flex the forearm upon the arm, and the leg upon the thigh, and carefully ascertain whether any of the muscles of these parts offer any resistance to these movements, and if they do, you should note the degree of this resistance—whether it be merely a slight resistance, or whether it amount to a state of greater or less rigidity. Sometimes you will find that the biceps is the only muscle which at all opposes your movements, and in other cases it is the triceps alone which resists; while in other cases you will find all the muscles of the limb in a state of intense rigidity. You will readily understand the great importance of attending to these points when I tell you that these different states of the paralysed muscles—flaccidity, slight resistance, or absolute rigidity—are indications of different states of brain. Thus the perfectly flaccid condition of the muscles of the palsied limbs is indicative of a cerebral lesion distinctly atrophic in its nature—a lesion the very opposite of inflammatory, of a low kind, and one in which there is a tendency to waste, and in which the vital powers are *below par*.

The resistive state of the paralysed muscles shows that the cerebral lesion, whatever it be, is of an *irritative* kind. A very frequent cause of this state of muscles is a small apoplectic clot with laceration by the effused blood of some of the healthy brain-substance immediately adjoining it. When the palsied muscles are hard and rigid, and almost in a tetanic condition, the brain lesion is of a more distinctly and decidedly irritative kind than in the last-mentioned class of cases, in which there is merely simple resistance, and is sometimes of an inflammatory nature. These are the cases best adapted for bleeding, or, at all events, for mercury. But when there is merely resistance of the paralysed muscles, and, *à fortiori*, when they are perfectly flaccid, these remedies are inadmissible and generally calculated to do harm.

Here, then, we have in the case before us all the indications of paralysis dependent on an atrophic lesion of the brain—all the characters in fact, of an ordinary case of a common form of hemiplegia, but a form which is more frequently met with in persons more advanced in life than our patient. I omitted to mention that sensibility was considerably diminished in the paralysed limbs after the attack, and (what is not very common) it has since exhibited no decided tendency towards a speedy return. If you converse with this patient you will perceive that, although she is in a low and depressed state, which is partly perhaps due to the shock of the attack, and partly also to an enfeebled and impaired health prior to the seizure, her intellectual powers are pretty perfect; and I therefore infer that her hemispherical convolutions are not damaged.

The lesion in this patient is *atrophic*, or *white softening*, and its seat is, I believe, some part of the *centre of volition*—that part of the brain which is immediately concerned in voluntary actions, *i.e.*, the corpus striatum and optic thalamus on the left side, or parts in immediate connexion with these ganglia.

White softening depends for the most part upon any condition which cuts off from the brain, or from a part of the brain, the normal supply of blood. This has now been proved by many cases in which ligatures have been placed for surgical purposes upon the common carotid artery, and in which the operation has been speedily followed by hemiplegia of the opposite side. I witnessed a case of this kind, in which, two days after the application of the ligature, the patient was suddenly seized with hemiplegia of the opposite side, without any loss of consciousness whatever, and in which the post-mortem examination showed a state of white softening of the cerebral hemisphere of the same side as that of the carotid tied. I myself put on record some years ago a case in which hemiplegia resulted from a state of white softening dependent upon defective blood supply, which I believe is perfectly unique; and, although I have many times tried to bring about this pathological condition by tying the carotids of the lower animals, I have never met with decided success; but in the case to which I am now alluding the experiment was already performed for us by what one may almost designate a *freak of disease*. The case was one of dissecting aneurism: through a slit in the aorta blood in considerable quantity forced its way, by splitting up the coats of this vessel along the innominata, and for about an inch and a half up the right common carotid, where it coagulated, and thus formed a plug, which completely obliterated the cavity of the artery (carotid;) I should add, that the dissected condition of the coats extended downwards along the arch and abdominal aorta in the belly, to the renal artery. When the accident occurred the patient fainted, but he recovered after a little time, under the application of the usual restoratives; and I saw him the same evening, and also the following day, and was greatly puzzled to tell what was the nature of the case; for the principal symptom was pain, referred to the back and the chest. But two days after the accident the patient suddenly became hemiplegic on the left side, without in the least degree losing his consciousness; and the characters of the palsy were precisely those of our patient upstairs, the paralysed muscles being perfectly flaccid and relaxed. He continued, however, to live on for eleven days, a very unusual thing in a case of dissecting aneurism, and then death took place, the coats of the first portion of the aorta having given way, and allowed blood to escape into and distend the pericardial sac. When we came to examine the body, we found a state of white softening in all those parts of the right hemisphere of the brain which are supplied with blood by the anterior cerebral artery, which, as you know, supplies the whole substance of the hemisphere. I may here observe,

that the chief reason why I have been unable to produce this condition in the lower animals by tying the common carotid artery, is that their brains receive their chief supply of blood from the vertebrals, which appears to be even sufficient to keep up its nutrition, when both carotids are perfectly obliterated.

The state of white softening of the brain occurs chiefly in persons advanced in life—from fifty to eighty years of age, and upwards. In these patients it appears to depend upon a gradual change which takes place, to a greater or less degree, in the coats of all the arteries of the body, but especially in those of the brain. This change, which is known generally under the term *atheroma*, consists in the deposition of earthy and fatty matter in the walls of the vessels, causing a degeneration of their tunics. Sometimes the deposits are confined to the larger vessels; sometimes the capillaries are diseased, and their muscular fibres have undergone fatty degeneration, as was first pointed out by Mr. Paget. The effect of these deposits is, that the capillary circulation throughout the brain becomes more or less impeded, being most so when there is most disease of the vessels. The brain substance, gradually becoming less and less perfectly nourished, passes into a softened state, and at length melts down. The solution of continuity of nerve fibres which thus occurs results in the effectual cutting off of all communication between the centre of volition and the opposite half of the body, and induces a state of hemiplegia. It is precisely this process which, I believe, has taken place in the subject of our remarks to-day. If, then, the malady be due to a diseased state of the arterial system, and especially to a fatty condition of the cerebral capillaries, the walls of which have scarcely strength enough left to retain the blood within them, it is quite clear that the lesion is essentially of an atrophic nature, and in no way due to any overflow of blood to the brain. And it is in cases of this kind that true apoplexy most frequently occurs—that is to say, in which blood in greater or less quantity becomes effused into the brain—and the blood thus poured out often ploughs up the surrounding nervous substance, so as to form a considerable cavity, in which the clot is contained.

How do we distinguish this apoplectic condition from simple softening? and how do we know that in the case of our patient, Mary Anne Godfrey, true apoplexy has not occurred? The reason why I say there is no effusion of blood in this case is, because a very small clot will almost invariably induce more or less of a comatose condition. A clot no larger than the end of one's little finger will generally give rise to a lethargic condition at least, if not to perfect coma; and this will usually be accompanied with more or less of snoring. When hemiplegia is dependent on a state of simple white softening, though the patient may for some time after the stroke be for a brief period unconscious, lethargic, and inclined to gape, yet there will be no prolonged loss of consciousness, and the intellect will generally recover itself perfectly—this last depending partly on the normal nutrition of the

greatest portion of the affected hemisphere, and partly upon the healthy state of the opposite hemisphere.

Again, (and here, in consequence of want of time, I must speak rather dogmatically, although these conclusions, I should tell you, are drawn from close clinical observation, together with the results of numerous post-mortem examinations,) if blood be effused into the brain, provided it encroaches on and more or less lacerates healthy brain, then there will be more or less resistance or rigidity of the palsied muscles, while if the clot be large the symptoms of coma will be very decided and prolonged; the patient will lie in a heavy sleep, from which he can be roused only with great difficulty, or, perhaps, not at all. On the other hand, when you come to the bed of a patient labouring under hemiplegia from simple white softening, you will find him, generally speaking, able to answer questions readily and rationally, athough, in some cases his speech may be "thick," according to the extent to which certain muscles of articulation and deglutition may have been affected, or to which the centre of emotion may have been involved either by shock or actual disease. We conclude, therefore, that the hemiplegia in the woman upstairs depends upon an atrophic softening (white softening) of certain central parts in the left half of the brain.

The history of this patient affords confirmation to this diagnosis. There is an account of her having had two or three epileptic fits prior to the first attack, and it is not improbable that both it and the second attack were real epileptic fits, so that it is very likely that the hemiplegia, or rather the white softening upon which it depends, may be associated with the conditions which give rise to the epileptic paroxysms.

Taking then this view of the nature of the case, what treatment did we pursue? You have heard the remedies which were employed prior to the patient's admission into the Hospital; and you will now, perhaps, not be surprised to learn that the plan which we adopted was precisely the reverse of this. A general supporting plan of treatment was resorted to; at first ammonia and chloric ether were exhibited every four hours, and with these a little wine was given; and during the last few days the patient has been taking quinine. Now, if the hemiplegia depended upon any hyperæmic or plethoric condition, upon a too highly nourished state of brain, or upon the presence of too much blood within the cranium, no measures would, probably, have been productive of greater harm than those to which we have had recourse; but on the contrary, our patient is slowly and gradually improving; slight reflex actions are now capable of being excited in the paralysed leg, and this limb, will doubtless, be the first which will recover itself, after which the palsy will disappear from the face and tongue, and lastly from the arm, for this is the order in which the recovery of paralysed limbs generally occurs.

I may here state that when this woman was in the hospital in 1850,

for a similar attack of hemiplegia, the paralysis was on the *left* side, whereas it is now on the *right* side; and the treatment upon which she was then placed was exactly like the course which is now being pursued.

She left the hospital then, perfectly well, and continued so, with the exception of her being almost constantly subject, in a greater or less degree, to rheumatic pains until the present attack.

It often happens in cases of hemiplegia dependent on white softening, that the patient recovers perfectly from the first attack, and, after a longer or shorter interval, gets another stroke of palsy; and this second seizure is rarely on the same side as the first. The reason of this appears to be, that the affection depends upon a diseased state of the blood-vessels, and that this last morbid condition is the result of a symmetrical process, affecting both sides of the brain alike, but as it does not generally proceed exactly *pari passu* on the two sides, it is usually found in a slightly more advanced stage on one than on the other. This is a most interesting pathological fact, as it well explains the point in the clinical history of those cases to which I have just adverted.

Some of you may ask, How does recovery take place in these cases, and what changes occur then in the softened parts of the brain? It is impossible, in the present state of knowledge, to speak upon this subject otherwise than speculatively. As regards the fatty and earthy degeneration of the coats of the blood-vessels, upon which depends the defective blood-supply which so often immediately induces the state of white softening, this, I should imagine, is a morbid condition which never recovers itself; but although this is probably the case, still as the softening is generally due directly, as just said, to some stoppage of the circulation in the brain, to the plugging, or the obliteration by some means of some vessel, so it appears reasonable to suppose that in the cases of recovery a collateral circulation is established sufficient to restore and maintain the normal nutrition of the softened brain; just as occurs when the main artery of a limb is tied for surgical purposes. This appears to me to be the most reasonable explanation of these phenomena, the correctness of which further observation must determine; however this may be, I feel satisfied from clinical observation that this simple white softening is capable of being repaired. But in very many cases the process of repair does not take place, the brain-fibres remain inadequately nourished, and so the case proceeds from bad to worse; the paralysis never recovers itself, the temperature of the palsied limbs falls below the normal standard, and the paralysed parts suffer in their capillary circulation, and often in consequence become œdematous. It is not very uncommon to see patients suffering from paralysis dependent on an atrophic condition of the nervous centres, whose palsied limbs are perfectly dropsical, although there may be no œdema of any other part of the body.

It is quite unreasonable, therefore, to think of treating such cases

as that of our patient upon any other than a supporting plan. What you should do is to endeavour to improve the condition of the blood, and uphold the strength of your patient in every way that his digestive power will permit. If you do this you need not look upon these cases as hopeless, as used frequently to be done in former years; for upon this plan you will often find that these patients will go on for months, or even years. You see the practice which I almost invariably pursue, and many of you well know that it is a very rare thing for us to get a post-mortem inspection in these cases, as, unfortunately for our scientific researches, these patients wont die. Although we do not effect more cures now than formerly, certainly our patients live longer, and we generally send them out of the Hospital in a comparatively much improved condition; and this I sincerely believe, is mainly, if not entirely, due to our adopting a supporting plan of treatment.—*Med. Times and Gazette, Feb.* 6, 1858, *p.* 131.

14.—ON THE VALUE OF TONIC TREATMENT IN SOME DISEASES OF THE BRAIN.

By F. C. Skey, Esq., Surgeon to St. Bartholomew's Hospital.

I wish to speak of what is called "Ramollissement," or softening of the brain. I do not wish to speak of its pathology, I know very little about that, as to whether it is inflammatory or febrile, or what not. All that I pretend to know or to tell you is that the disease, as we see it, begins insidiously by loss of muscular power, and it occurs most frequently in men about the middle period of life; the gait or walk of such a patient is unsteady, and it seems natural to ask a surgeon what may be the cause of this unsteadiness or irregularity. A banker or a banker's clerk finds his style of writing changes; he has power, *quoad* power, he can use a dumb-bell, but he cannot regulate this power so as to write a letter, as he previously had done; his urinary system becomes affected, and his urine dribbles away, and even the rectum, from forgetfulness on the part of the patient, becomes partly paralytic; there is loss of memory or incoherence of ideas, small eccentricities appear. This man will spell some words badly; these are signs of recent cases: there is little or no implication of the reasoning powers, at least to any extent, but the loss of power, as in handling a pen to write, is most peculiar, as well as the irregularity of spelling of monosyllables badly or backwards in what is written. But if you wish for a more minute description of the disease you will find it in the works of Rostan and others. Now, these cases are common; this train of symptoms occurs in men who have undergone long anxiety in business, or otherwise; men of Parliament or the Stock Exchange, whose "all" may sometimes depend on some bold speculation, or on some cargo of goods at sea, or the like; or this disease will occur in men who have had exhausting fevers or other maladies; or again, in the case of a man who rides with

hounds five days a week, four hundred miles a week, and it may be, drinks wine, eats very little, marries late in life, suffers from venereal exhaustion!—his nervous system becomes "broken down," as it is called. What is the condition of the brain then? Is it a condition of excess of vascular or vital force, or the opposite? Can any of you recall a case of "ramollissement" as it used to be treated a few years ago? Happily for yourselves, perhaps not; but the principal point was to keep always in mind "chronic inflammation," and to treat it accordingly. This poor gentleman must first be reduced, made to keep quiet, his diet regulated, his wine and fox-hunting stopped, and three grains of grey powder with rhubarb, given at clock-work intervals, for what are called the "secretions," or to touch the gums for this chronic (?) inflammation. Next, his skin was steadily looked to, and that great catholicon of surgery lads, mindererus spirit, with antimony, was ordered, spoiling what little appetite the unfortunate patient may have had. He was rigidly confined to the house—but, mind you, with all this excellent drugging his speech does not improve; he progresses, but it is from bad to worse. Very well! Now that is one view—now for another. Mark that there is a slow pulse, everything is below par, as I call it. In this, then, "chronic inflammation," some people count on their ten fingers all the drugs I use or adopt. I am very glad of it, for we have too much routine and rubbish in what is called "general practice." The eyes of the public are upon us; are you then justified in lowering this man with your antimony and your grey powder, and your mindererus spirit? Oh, no! But some Solon says you weaken the patient in order that he may get strong. In these cases I could never understand that kind of logic; believe me, if you wish to succeed in practice, you must give up such an idea; you must study nature a little more, and books and journals less. All the medical world of Europe is progressing; but we are still tied down to grey powder, and oceans of physic, and bleeding, whereas what is required is that we follow the vis medicatrix and take advantage of the hints she affords us! Well, then, so much for that; now for a case of "ramollissement" as it is called. About two years ago, a physician called on me; he said, "You are wanted down to so-and-so (150 miles in the country). Mr. So-and-so (a rich country nobleman) has forced a catheter through his urethra; the poor gentleman has got 'ramollissement,' you know that we are not so uneasy about; that is incurable of course; if you can do anything for it well and good; but his faculties are completely gone." Well, to make a rather long story short, Sir B. Brodie and I saw him, and a fortnight after he came up to town, to his residence in Belgrave-square, and I had nearly the entire management of the case.

It is exactly in this sphere of life, of rich noblemen, merchants, or political men in the fashionable West-end squares, that we can alone catch glimpses of these two opposites—viz., the excess of high living, and the excess of Sangrado bleedings and starvation or

low living of us the doctors! Many of these cases are probably "heart disease," and a patient dies of a fainting fit, called weak brain, but it is weak heart! Well, the more I came to look at this case of this gentleman, the more I said to myself, the man is dying of exhaustion. I noticed he was better after dinner; I heard that he had had convulsions; this did not frighten me. Now, I want to ask you a curious question; have you ever seen a sheep killed? If not, I would advise you the next time you are near Aldgate market, just to look at the thing for yourselves. Just before all the blood is gone from the sheep, it is horribly convulsed; remember that fact also in weak children who are convulsed. Convulsions, in fact, as you will meet them in practice, are eight times out of ten the result of a very irritable state of the medulla oblongata or chord, which causes very slight irritations elsewhere to excite violent reflex or convulsive movements; thus, worms or indigestible food will cause convulsions where the nervous centres are weak or irritable. This condition of convulsions to my mind is almost always one of "exhaustion" rather than congestion; just mind that fact when you go into practice—convulsions, as caused by anæmia, or "exhaustion."

But to go on with the case, I could not find that this gentleman had had any tonic treatment. I knew that if the brain be anæmic, it cannot go on long in a normal manner, for nine out of ten cases of "ramollissement" are due to anæmia; so I decided to let him go back to his old mode of living. I gave him a pint of claret a-day, that he was accustomed to, in place of water-gruel! He seemed to improve on it. The ratiocinations of his friends did not come true that it would kill him, so we let him have also quinine and iron in place of leeches and water-gruel, and grey powder, and antimony, and mindererus!

I studied the case for a short time; there was a manifest improvement every week. I was called one day; he was a little worse; did I bleed him? No; I had the experiment with the sheep in my mind; he is a gentleman of very great eminence. It would have appeared very brilliant in a "bulletin," like the brilliant operations elsewhere, that we came up the fifty-ninth minute of the last hour of his sad existence and opened the carotid or temporal, but I did nothing of the kind: I increased his wine. Well, at the expiration of three months, that gentleman made a political speech that utterly astonished his constituents. He can now ride to the fox-hounds as well as ever he did, and in the changes and chances of Parliament has filled a very important place; he is in fact to all intents and purposes cured!

Now, a few words on another case. I was called to see another gentleman, who, I was told, was attacked with "epileptic or some fits" every fortnight. I found they were not perhaps epileptic, as he was never incoherent or deprived of consciousness.

He was a "*bon vivant*," as many of these patients are. The symptoms came on two years previously; his pulse was all along small and

weak, quite incompetent to the work, as I thought, of supplying a large and active brain. His doctor had ordered him, as a great stretch of the roborant plan, two wine-glasses of claret at dinner, mixed with water, and pump-water, "usque ad nauseam," the rest of the day. How can you prevent or cure disease on such trash as that? Mind you, he was a "*bon vivant*," and had now come to believe that the cardinal point of his cure was rest and starvation. Well, I ordered him the first day, a thing he very much wished for—two rattling tumblers of Bass's best ale per diem, and other treatment in accordance with that plan: he got better. His lady sent for me, however, one night, and I met her on the stairs looking very dolorous indeed. I thought he was dying, or dead; but she said, with a solemn face, "he took advantage of our prescription, what *will* become of him? He has taken to-day seven tumblers of ale!" "The deuce he did; but he is the better of it. I am delighted," I said; and it really did him no harm but good: he had ridden twelve miles, and was tired, and quenched his thirst in Bass's ale accordingly! Now, that gentleman soon lost his fits, or at least he had a slight fit once in three months in place of once every fortnight. He got on most famously under the strengthening plan, as in the former instance; but in an evil hour he went down to the country in the summer, and on the return of his "fit" the next-to-hand surgeon, with a red lamp, was sent for, who bled him, gave him the orthodox doses of calomel and colocynth, followed up by—and—yes—but he never breathed again!

I have had now nine or ten of these cases of ramollissement; they all have had slow pulse—a condition always improved by tonics. The heart is perhaps at the root of the disease rather than the brain; some of these patients had alarming syncope—that is, heart, depend on it, not brain. I met Dr. Latham and Dr. Ferguson with one case, and we had a good deal to do to give force to the heart and pulse.

Now, I do not want at all to say—that in some of these very cases we may not have had "ramollissement." I merely contend for the position, that leeches, oceans of physic, and starvation, are not the proper remedies. I will only say a few words relative to another case, which was seen by three of our ablest physicians in London—two pronounced it "ramollissement," and the third "tubercle." I think tubercle in the brain is a very rare disease in adults; this patient had excessively weak pulse; he had married late in life, and in many other particulars he was the exact counterpart of the case already given; he was rather forced on me as to treatment. I gave him wine and the ferro-citrate of quinine in large doses—a remedy I have great faith in. Well, in three months he was quite recovered. I have said already I do not believe this disease to be of the nature of inflammation; with heat, pain, redness, swelling, &c., it strikes me as rather of the nature of gangrene, and as arising from anæmia, not hyperæmia. This last gentleman, I ought to say, had an issue ordered for

him in Dublin. Well, I have no objection to an issue in these cases, nor am I frightened at stopping an issue. There is something of the fabulous about what is written and taught in lectures as to stopping issues. This gentleman's issue healed up, or rather I took off the plaster, and never had that abiding faith in its efficacy that would induce me to put it on again. In the earlier stages an issue may do good; it can at least do no positive harm, like other things which have had more than a questionable character, as specifics for "ramollissement;" indeed, specifics so called, which unquestionably have hurried many patients to their graves, and which I would implore you to consider well in all their bearings before you adopt them.—*Dublin Hospital Gazette, March* 15, 1858, *p.* 92.

15.—ON INCOMPLETE PARALYSIS OF THE LOWER EXTREMITIES, CONNECTED WITH DISEASES OF THE URINARY ORGANS.

By T. Spencer Wells, Esq., Lecturer on Surgery at the Grosvenor Place School of Medicine; Surgeon to the Samaritan Hospital, &c.

[This form of paraplegia incipient, rather imperfect in its nature, seems to the author to be on the increase in this country, especially among the younger men.]

My attention was first directed to this disease in 1845. Since then I have had eleven cases under treatment, and have seen occasionally about thirty others. Some of the latter were very probably ordinary cases of paraplegia depending upon softening, atrophy, or some other disease of the lower portion of the spinal cord. This disease will be fully described to you by my colleague who occupies the medical chair; but in the cases I allude to the paralysis is not dependent on spinal disease, and it is closely associated with diseases of the bladder, of the kidney, or of both. And here let me at once guard you against another source of fallacy. In all cases of paraplegia from injury or disease of the spine the bladder participates in the debility, and after a time it empties itself imperfectly—a little urine remains behind every time that urine is discharged—the mucous membrane of the bladder falls into a state of chronic irritation and viscid mucus or muco-purulent matter is thrown off from its surface. This acts as a ferment in the urine, leading to the decomposition of some of the urea it contains, and the evolution of carbonate of ammonia. Here the urinary disease is merely secondary. It is only one of the effects of spinal disease. In the cases I allude to the urinary affection is the first noticeable point of departure from the state of health. If not actually the primary disease, it by no means plays the secondary part of the urinary affection in ordinary cases of paraplegia.

When a patient comes to you with a tottering gait, complaining of weakness in the knees, a tendency to stumble in going up and down

stairs or on any uneven ground, and a certain loss of that muscular sense which enables us to walk without watching the feet to know where to place them at every step, your first impression will be very naturally that you have to deal with a case of spinal disease. Your first impression may be correct. As you proceed with your examination of the case you may obtain evidence of some injury to the spine, some distortion of the bones, some displacement from caries of the bodies of the vertebræ or ulceration of the intervertebral cartilages, some point at which pressure or a sharp tap, or a hot sponge, causes pain—some history of inflammation of the cord—some indication of the pressure of a tumour, or of an aneurism on the cord—or possibly some proof that the disease is within the cranium. But you may find nothing of the kind. You have to exclude all these, and you are driven to assume a diseased condition of the lower portion of the cord, perhaps a single atrophy, of the existence of which you have no other proof than the paraplegic symptoms I have just enumerated. Let me convince you then that you may have all these symptoms, that they may go on to complete paraplegia, and the patient may die, and that then you may find the cord perfectly healthy, so far as our examination can teach us, while the kidneys and bladder are the seat of manifest disease.

Rayer, in his great work on the diseases of the kidneys (vol. iii., p. 168) says, "The development of paralysis after diseases of the urinary passages is even now a fact unknown to a great many physicians."—I think the observation would apply to many English as well as French physicians, though Mr. Stanley published accounts of several cases of paralysis following nephritis so long ago as 1833, in the 18th vol. of the Medico-Chirurgical Transactions. His paper is entitled, "On Irritation of the Spinal Cord and its Nerves in connexion with Disease of the Kidneys." He narrates cases of disease in the kidneys existing in connexion with tenderness of the spine and paralysis of the lower limbs, which were, in consequence, treated as cases of disease in the fibro-cartilages and bodies of the vertebræ. I will read you four of these cases in Mr. Stanley's own words:—

"The first of these cases to which my attention was directed, occurred in the year 1818, in a man admitted into St. Bartholomew's Hospital on account of paraplegia combined with retention of urine. Both sensation and the power of motion were entirely lost in the lower limbs. On examining the spine, tenderness on pressure was discovered at the third lumbar vertebra, which, viewed in connexion with the other symptoms, was considered to indicate the existence of disease in the vertebræ, and an issue was accordingly made in this part of the spine. Considerable amendment of the symptoms followed. Sensation and the power of motion were in a certain degree regained, and the retention became changed into incontinence of urine. Here the improvement ceased, the general health failed, and he gradually sunk.

"On a careful examination of the body, no disease could be discovered in the containing or contained parts of the vertebral column; the vertebræ, fibro-cartilages, spinal cord, and nerves were all perfectly sound, as were also the brain and its membranes. In one kidney were numerous small abscesses dispersed through its substance. The other kidney was gorged with blood, and its substance was much softer than natural. The mucous lining of the ureters and of the bladder was very vascular, and the muscular coat of the bladder was thickened.

"The next case occurred in 1821, in a man aged 35, admitted into the hospital on account of partial loss of the power of motion both in his upper and lower limbs, which had commenced about a month previously, and was supposed to originate in disease of the cervical vertebræ. He suffered besides from irritation in the bladder with occasional inability to expel the urine, which was mixed with some puriform fluid. In about six weeks from his admission, his health gradually declining, he died.

"On examining the body, both kidneys were found gorged with blood. In the substance of one kidney there were small depositions of pus. The muscular coat of the bladder was thickened, and its mucous coat very vascular. No morbid appearance was discovered in the brain or spinal cord. The vertebræ and their fibro-cartilages were perfectly healthy."

In Cruveilhier's Pathological Anatomy you may find a full report of the case of Sanson, a celebrated French Surgeon. He died in 1841, after having suffered for more than a year from paraplegia. For several years before the attack of paraplegia he had suffered from enlarged prostate, difficulty in passing water, and then a calculus. Cruveilhier says, "M. Rayer and I could not misunderstand the importance of the coincidence of a disease of the urinary passages and the paraplegia, a coincidence to which Mr. Stanley was one of the first to direct especial attention." Chomel, Rayer, and Cruveilhier were present at the post-mortem. Extensive disease of the urinary organs was observed, but the vertebræ and spinal cord were perfectly healthy.

Lallemand, in his work on involuntary seminal emissions, has recorded many cases in which the patients were feeble or vacillating in their limbs, and afterwards subjects of incomplete paralysis of the lower extremities. I do not question for a moment that paraplegia is a common result of frequent seminal emissions, voluntary or involuntary; indeed, it is undeniable that the frequent agitation of the nervous system, so caused, does lead to chronic inflammation and softening of the cord, with paraplegia as a necessary consequence. But any one who will read Lallemand's cases carefully will see that, in several of them, the paralysis was consecutive, not to disease of the genital, but of the urinary organs, such as chronic affections of the prostate and [illegible] or pyelitis.

In Dr. Neligan's edition of Graves's Clinical Lectures you will find a case in which chronic gonorrhœa, exposure to cold, and drinking whiskey was followed by pain in the back, dysuria, and paraplegia. A stricture was found in the urethra, which was dilated; and Dr. Graves says, that a few days after the introduction of the first catheter power returned to the lower extremities in a remarkable manner. The patient left the hospital in little more than a month, having recovered complete use of his limbs, and passing his water perfectly well.

Last year, Dr. Raoul Leroy d'Etiolles published a work on Paraplegia, in which he records a great number of cases he has collected in the hospitals of Paris, or has observed in private practice, proving beyond dispute the very frequent occurrence of gonorrhœa, cystitis, enlargement of the prostate, retention of urine, and nephritis, as antecedents of paraplegia—a recovery of power in the limbs as the condition of the urinary organs improved—and in fatal cases, all the appearances of severe inflammation of these organs, while the brain, cord, and vertebræ were perfectly healthy. Many of his cases are extremely interesting; but time does not permit me to enter into their details. I trust, however, I have said enough to convince you that, while on the one hand disease of the urinary organs is constantly caused by paraplegia, so on the other paraplegia is frequently consecutive to disease of the urinary organs.

The next steps in the inquiry are, What is the nature of the urinary affection? and, How does it lead to paraplegia?

Now, in attempting to reply to the first question, I can say very little from my own observation, as I have not had an opportunity of making a post-mortem examination. But you will remember the state of the urinary organs described by Mr. Stanley in his cases. In these, and in many of the cases narrated by M. Leroy d'Etiolles, either one or both kidneys presented very evident signs of disease. In the acute cases there were all the marks of severe inflammation, with the formation of numerous small abscesses in the substance of the kidney. In more chronic cases the mucous membrane of the ureters, and of the pelvis and calices of the kidney, have been principally affected. It has been found soft and thick, coloured by injection in various degrees, and distended by purulent matter. The bladder has been found in every stage of disease, from simple injection of the mucous membrane to ulceration and perforation on the one hand, or hypertrophy and thickening on the other. The prostate has been found diseased very frequently, sometimes simply enlarged, and then the enlargement was mostly due to hypertrophy of one of the lateral lobes; or there has been that sort of transverse valve formed by the central portion, which we so frequently find as offering obstruction to the passage of a catheter. In some cases it was found full of pus, or small multiple abscesses were disseminated through its tissue. Sometimes the traces of an instrument which had traversed the gland were seen. Nothing very important was found in the urethra; but several patients had had strictures dilated during life.

Then, as to the next point. How can all this cause paraplegia? Here I must remind you of the anatomical connexions and physiological relations between the spinal cord and the great sympathetic nerve. You know that the vertebral portion of the sympathetic consists of a number of ganglia, united together by branches which pass from each ganglion to the one above and the one below it. There are twelve of these dorsal ganglia, four lumbar, and four or five sacral; and every one of them communicates with the corresponding spinal nerve. Some anatomists have even fancied that they have demonstrated the *origin* of the sympathetic to be in the spinal marrow. You know that the urinary organs are largely supplied with branches of the sympathetic. Here, then, is a direct path of nervous communication between the kidneys and bladder and the spinal cord. It is by this communication that the well known influence of the spinal marrow upon the secretion of urine has been explained. Injuries of the vertebræ, concussions or compressions of the cord, and inflammation of the cord or its membranes, are all followed by the secretion of alkaline urine, or the development of ammonia in the bladder, while the bladder itself is more or less paralysed. The ready explanation has been that the sympathetic nerves supplying the kidneys and bladder did not receive their normal influence from the spinal cord through the spinal nerves. You may say we know all this, but what has it to do with the opposite action of the urinary organs upon the spinal marrow? Hear what Mr. Stanley said on this point before we heard much of Prochaska, Marshall Hall, and the reflex function of the cord.

"It might be thought improbable that irritation commencing in the kidney, or in the bladder, should be propagated through sentient nerves to the spinal cord, and that the impression should thence be transmitted through both the motive and sentient spinal nerves to the limbs, here occasioning an impairment both of sensation and of the power of motion. Some illustration of this subject seems to be furnished by the following researches of experimental physiology. If in an animal, 'a few seconds after it has been deprived of life, the spinal cord be then divided in the middle of the neck, and again in the middle of the back, upon irritating a sentient organ connected with either isolated segment, muscular action is produced, that is to say, a sentient organ is excited, and an irritation is propagated through the sentient nerve to the isolated segment of the spinal marrow where it gives rise to some change which is followed by an impulse along the voluntary nerve to the muscles of the part.' In the instances which have been adduced, irritation commencing in the nerves of an internal organ, the kidney or bladder, has been transmitted through the spinal cord to the motive and sentient nerves of the limbs; but the same phenomena may occur in an opposite order, as in the case of a compound fracture or other severe injury of the lower extremity followed by retention of urine, from irritation arising

in the anterior crural and ischiatic nerves, and communicated through the lumbar and sacral plexuses of spinal nerves to the nerves of the bladder."

When we obtain a more exact knowledge of the reciprocal influence exerted by the spinal cord and sympathetic ganglia upon each other; when we can determine what power the sympathetic receives from the cord, and what power it communicates to the cord, we may obtain more definite notions on these points. But I think what I have said is enough to show that if you disturb the normal condition of the sympathetic nerves supplying the kidneys and bladder, you need not be surprised at an alteration in the condition of the spinal nerves, with which the disordered sympathetic nerves communicate, or in the condition of the muscles which derive their motor power from the spinal nerves whose relations with the sympathetic have been disturbed.

But another explanation may be offered. I need hardly tell you that when you have disease of the kidneys, even if only their excretory functions be disordered, the nervous system may suffer in another way. The blood is not purified as it ought to be from the constituents the kidneys should remove from it, or it is modified by the removal of constituents the kidneys should not remove. In this case the nervous system suffers in common with the whole body, from the abnormal condition of the fluid on which its nutrition depends, and it occasionally suffers before other organs, or to a greater degree than they do. But I think we must have something more than this to connect urinary disease with paraplegia as cause and effect. You want to account for the lower extremities only—not the whole system—suffering, and you cannot do so very satisfactorily by chemical changes in the blood.

Then I should not omit to mention another reason for supposing that the sympathetic nerve plays an important part in this form of paraplegia. Gastric derangement is generally a very early symptom. Throughout the course of the disease it is usual to find a fissured, furred, slimy tongue; relaxed, turgid fauces; capricious appetite; alternations of want of appetite and voracity; thirst; a great tendency to eat fast, almost to *bolt* food; uneasiness, flatulence, and distension after eating; and constipation. These gastric symptoms are often far more troublesome to the patient than the weakness in his legs, or the bladder affection. Admitting the influence of the sympathetic, you can explain them readily enough by the intimate connexion of the renal and solar plexuses without bringing chemistry to your aid.

Now, to be enabled to distinguish this form of paraplegia from that depending on spinal disease, you must remember the history of the case, and compare this with the history of injury or disease of the vertebræ or intervertebral cartilages, or inflammation of the cord and its membranes, and bear in mind the following characteristics

of the disease I wish you to recognise. They may also help you to make the more difficult diagnosis between this form of paraplegia and that depending on simple atrophy or softening of the lower portion of the cord.

1. Some impediment to the discharge of urine is one of the earliest symptoms.
2. This is closely connected with obstinate gastric derangement.
3. The weakness in the limbs is rather extreme debility than paralysis.
4. The tactile sensibility is slightly if at all impaired, but the muscular sense may be almost lost.
5. The limbs are tolerably well nourished. They may be thin, but there is no marked muscular atrophy, and their temperature is very little lowered.
6. The sphincter ani is not paralysed, though it may be weak.
7. The bladder preserves some degree of contractility.
8. There may be no pain in the back, and no pain on pressing the spinous processes or applying a hot sponge to them.
9. The degree of weakness in the limbs varies with the state of the urinary organs. Great amendment will sometimes rapidly follow catheterism and the removal of any obstruction to the free discharge of urine.
10. In the early stages of the disease there is no history of convulsions, cramps, spasms, formication, or violent neuralgic pains.

[The opponents of tobacco say that smoking in excess favours paralytic affections; it certainly impairs digestion, and is better avoided in these cases. Cold bathing also may favour it.]

You will take into account, then, both tobacco and cold bathing a causes of paraplegia, but without attaching too much importance to them. I am disposed to attach much more importance to sexual irregularities—the occasional excess and occasional abstinence—which follow the state of celibacy, or the late marriages of the present day. The excessive luxury of our age brings its own punishment with it. If young ladies cannot wear a dress which costs less than twenty guineas; if they are not content with dressing *themselves*, but will insist in carrying about a preposterous cage of hoops and rings four times the size of the human figure, and covering this with silk at a guinea a-yard; if they will spend five or ten guineas on a bonnet which affords neither shelter nor warmth to the head, they cannot expect a moderate man to ruin himself with milliner's bills, and need not be surprised if he shrinks into his solitary bedroom, and lives at his club. If young gentlemen must spend thirty or forty pounds a-year in cigars; if they will drink claret and champagne; if they must have a "trap" or a hack at the very least; if a stall at the opera is indispensable, and the pocket not very deep, it is very clear that nothing is left for the wife and children. If parents of moderate

means, who have brought up their children respectably, will not allow their daughters to marry a man who has to make his way in the world, but insist upon a house and servants and carriage, we need not be surprised at the number of old young ladies and old young men we meet with everywhere; and we need not be surprised at the physical evils which flow from such an unnatural state of society.

Lastly, as to the *treatment* of this disease. If you see a case in its very early stages, take care to remove any obstruction to the free discharge of urine. Use bougies until a full-sized instrument passes freely, and then endeavour to correct anything that may be acting injuriously upon the general health. Give such rules as to diet, exercise, residence, clothing, bathing, and change of air, as will tend to restore any lost vigour. Attend carefully to the condition of the urine and regulate your medicinal treatment accordingly. Put your patient on his guard as to the possible progress or return of his disease, and you will not do your duty, as I believe, without advising him earnestly to marry.

When you have a more advanced case to deal with, the condition of the digestive organs will be a primary consideration. The tendency to constipation must be overcome, and I think a daily enema of warm water answers better than any dinner pill or aperient draught. If you do give pills avoid aloes, as they are apt to increase the urinary irritation, and saline purgatives for the same reason. Gregory's powder is as good an aperient as you can use. An elastic belt worn round the abdomen will tend to make up in some degree for the weakness of the abdominal muscles, and help to remove one of the causes of constipation. Then, as to the state of the stomach, I believe you will do more good by careful diet than by any medicine. I have seen every kind of remedy tried and very little good done by any. Lastly two of my patients have taken pepsine, but without the slightest benefit. What really does good is a thorough change of life—a long sea voyage, mountain air, warm bathing, and a course of some one or two mineral waters.

The "grape cure," as it is called, I have known to prove very beneficial. At Meran in the Tyrol, and some other places, patients are kept while the grapes are ripe almost entirely upon them and bread. A little weak broth and rice is also given, but bread and grapes are the staple articles of diet. You will see at once how likely so complete a change of food is to modify—and modify for the better—the condition of the digestive and urinary organs. Besides, the life in the open air, the quiet, and hope, all act beneficially; and I can strongly recommended six weeks of the grape cure in the autumn after a summer at some of the mineral waters and warm springs.

Take a case still more advanced. The feebleness of the limbs is extreme—the patient can walk a mile or two, perhaps, but the gait is tottering, the urine is loaded with mucus, or muco-pus and the phosphates; it soon becomes ammoniacal after it is passed, and there is

frequent desire to pass it. Attending to what I have said as to the earlier stages, other things will suggest themselves now, such as strychnine, galvanism, opium, steel, cantharides, and the medicines which have a specific action on the mucous membrane of the bladder.

As to strychnine, I have seen it tried in small doses, and I have seen it carried on till its characteristic effects have been produced. I have seen it do harm, but I never saw it do any good whatever. Galvanism, or electro-magnetism, on the contrary, I feel quite certain is of very great utility, but it must be used perseveringly. You may either send a pretty strong current through the weak muscles for a few minutes every day, or the patient may wear one of the little portable batteries sold by Mr. Meinig, with a pole fixed to each limb so as to keep up a constant mild current day and night. Opium is of great utility in relieving the general irritability, and the irritability of the bladder in particular. Iron may be useful as in ordinary cases of debility, but in the form of muriated tincture, and in combination with cantharides, it is sometimes followed by surprising good effects. In one case the good effect was so sudden and remarkable that I was almost led to accept the supposition of Dr. Seymour, that cantharides by its diuretic action tends to remove serum effused into the spinal cavity. In other cases I have seen the mixture of cantharides and iron tend to the restoration of great contractile power to the bladder, and relieve the frequent desire to pass water. I learnt the use of it accidentally from witnessing the good effects of one of the "Balms" or "Elixirs" sold by those Pariahs of our profession, who fatten upon the fears they set up and the diseases their vile books create. The usual dose is fifteen minims of the muriated tincture of iron, and half a drachm of the tincture of cantharides, twice or three times a-day.

As to the medicines which have an astringent action on the mucous membrane of the bladder—buchu, uva-ursi, chimaphila and pareira brava—they are to be looked on as mere palliatives, and the last is the only one I have much confidence in. It is very useful when there is great irritability of the bladder, and a copious deposit of muco-purulent matter in the urine. You may give half a pint, or even a pint of the decoction daily, with opium or hyoscyamus if necessary. When the earthy phosphates are also deposited freely, you will find the diluted phosphoric acid very useful, and you may give this in half drachm doses in the decoction of pareira. If the deposit is more of the mixed phosphates the benzoic acid answers better. A favourite draught of mine is five to ten grains of benzoic acid, and half an ounce of mucilage, in two or three ounces of the decoction of pareira, with either twenty or thirty minims of tincture of hyoscyamus, or ten or fifteen of the solution of bimeconate of morphia. If the muco-purulent and phosphatic deposits increase to such a degree as to offer obstruction to the escape of urine, you should wash out the bladder every day with warm water. This gives great relief, and if the

irritability of the bladder is excessive after you have washed it out, you should inject five minims of the diluted hydrocyanic acid of the Pharmacopœia in four ounces of warm water, and leave it in the bladder. The soothing effect of this is remarkable, and you may thus obtain several hours comfort for your patient even in the very worst cases.

You may remark that I have said nothing about the so-called nervine tonics, sulphate of zinc, oxide of silver, and so on. The reason is, that I have no faith in them. Your great object in these cases is to set the urinary organs to rights, to get the digestive organs into good order, and then to gain time for the restoration of the lost strength.

I shall only detain you a few minutes longer to add a word or two as to the mineral waters and warm springs which are likely to be most useful. A course of some aperient water as Ems or Carlsbad, should be taken first, and then a chalybeate should follow. The Schwalbach springs are very good ones, varying in strength, so that the patient can begin with the weakest. Dr. Struve's imitations of all these waters are very good, and you may use them if the patient cannot go abroad. Of the warm springs for bathing those at Wildbad and at Gastein have the highest reputation. The water at both is simply warm distilled water, so far as chemistry can teach us, but the effects are certainly different from anything we see after warm baths in this climate. I passed three weeks at Gastein this autumn, and saw a great many paralytic cases there, and whether it is the mountain air, or the warm water, or whatever it may be that does good, the practical fact for you to know is, that such cases do get better there, and get better in a very extraordinary manner, so that in obstinate cases you will be fully justified in urging your patients to pass a few weeks there.—*Med. Times and Gazette, Nov.* 14, 1857, *p.* 493.

16.—*On the Treatment of Delirium Tremens without the Use of Alcohol.* By John Higginbottom, Esq., F.R.S. —[The author has now discontinued the use both of alcoholic stimulants and opium in the treatment of delirium tremens. He says:—]

In the treatment of delirium tremens it is necessary first for the patient to abstain from all intoxicating agents.

In the beginning of a fit of intemperance, an emetic dose of ipecacuanha is invaluable, as mentioned in my paper in the *Lancet* for April, 1855, "On Ipecacuanha as a Remedy for Drunkenness," particularly as it has the effect of removing the desire for intoxicating drinks. I prefer ipecacuanha to the tartrate of antimony, as it produces no debilitating effects, and can be taken with perfect safety. It acts as a stimulant to the whole system; equalising the circulation, promoting the secretions, and assisting each organ of the body to perform its functions. This remedy, with the assistance of needful ape-

rients, proper diuretics and diaphoretics, given in a state of effervescence, tends to carry the *effete* matter from the system. It is necessary to continue these remedies for ten or fourteen days. My brother-in-law, the late Dr. Marshall Hall, who has been justly named "The English Physiologist," said to me, "If a man gets drunk, he cannot altogether get rid of *the nervous poison*, alcohol, from his body in less time than a fortnight!"

The digestive organs being restored to their normal state, weak tea or coffee, or any other simple diluent, may be taken as a beverage; for food, light nutritious diet; *much exercise in the open air;* with a daily shower-bath, or sponging the whole body with water, will effect a cure.—*Lancet, Nov.* 20, 1857, *p.* 545.

17—ON HEADACHE.

By Dr. John Addington Symonds, Consulting Physician to the Bristol General Hospital.

It will, I think, be a fitting commencement of our inquiry into this subject to consider the mode in which we become acquainted with the locality of pain in general.

What is pain? would seem at first sight to be one of the most superfluous of questions, seeing that pleasure and pain are the simplest, least decompoundable states into which consciousness can be resolved. But though pain is used in the abstract as expressing in shortest phrase the suffering of the *ego*, it seldom is presented to our notice without the association of some locality of the body. So much is this the case, that if a person complains of pain, we inquire immediately for its seat. Suffering, or a painful condition of the *ego*, may be quite independent of bodily feelings. In sorrow, mortification, and remorse, there is not necessarily any reference whatever to the body; but pain belongs to the body, and is attributed only by a metaphor to the mind.

The assignment of the seat of pain might seem, at first, to require only an appeal to the consciousness; but the inquiry, Where is the pain? receives not unfrequently the vaguest and most erroneous of answers, and sometimes none at all. But supposing the answer to be tolerably correct, let us endeavour to analyse the process by which the pain is referred to some determinate part of the body. Preliminary to this inquiry is another, How do we become acquainted with the topography of our bodies? It is undeniable that, to an enormous majority of mankind, a very large portion of their frames is utterly unknown. They know less of their bodies than even what a person who has never studied geology knows of the structure of the earth. But we will not take into account such knowledge as the anatomist acquires, but only such as those are possessed of who speak of heir bodies and their members.

There must have been a time in our existence when our bodies formed a part of the external world; which had to be learned by a gradual process of experience, analogous to that which subsequently made us acquainted with the position, distance, form, and properties of objects external to our bodies.

If you watch a very young infant you can detect no indication that anything is present to its consciousness, but the bodily comfort or discomfort of the moment—hunger or satisfaction of the stomach—warmth or cold; perhaps there may be a faint perception of light and sound; but the strongest recognition of the *non-ego* is in those fibres of the fifth pair which are impressed by the nipple. It is highly probable that the muscular sense gives various impressions to the infant, but they are not as yet so connected with other sensations as to impart the knowledge of body and limbs. This knowledge, indeed, must be the result of the slow accumulation of coherent sensations, such as the sight of the parts in question, associated with the tactile sensations excited by the presence or the pressure of that on which the body rests, or of an applied or adjacent limb, as a hand or foot, and with the various muscular sensations incident to the movements of the limbs. The knowledge of some of the superficial parts of the body must be the result of inference or analogy. The shape of the back of the head, and of the trunk, being out of the range of vision, can only be known by the analogy of other human beings. When the parts of the body have been learned and appropriated to the unity of personal existence, a recognition which grows by degrees like the rest of this department of knowledge, and in conjunction with it, the individual is still far from such proficiency as would enable him to answer that apparently simple question, Where is your pain?

It is often in vain that you ask a child, otherwise quick enough in answering questions, whereabouts he is suffering; and even adults, though indicating a region of the body, seem perplexed in their attempts to define with more exactness. Some automatic actions of children appear at first sight to indicate a knowledge of the seat of pain, as when the hand is carried towards the head in meningitis. But such actions are to be observed in profound sleep and in coma, and in all probability they belong to the class which have their analogues in almost the lowest divisions of animal life, and may be seen in some animals after decapitation.

I think, then, we may assume that the conscious reference of common sensation to any particular part of the body must be the result of experience, whether it be correct or erroneous in its teaching; the experience itself consisting, as we have already hinted, in the accumulation of associated perceptions. The more frequent in occurrence, and the more diverse these have been, the more accurate will be the reference; as when tact and touch, and muscular sensation, and sight, all contribute their several items. The precision will also be proportionate to the nervous endowment of the part in question, seeing that

the tactile sensation itself is well defined or confused, according to the more or less liberal distribution of primitive nervous fibres.

However discriminative the sensibility of the skin may be, it is obvious, that different impressions are perpetually sent from every portion of the cutaneous surface, whether from the contact of dress or from the collision of outward objects, or from changes of temperature, as well as from muscular movements,—and that by means of these, as well as by sight and analogy, the topography of the surface is well learned, so that when a new impression occurs in any part, the feelings of the part with which it is associated at once denote the locality of the impression.

But while this is the case with the skin, it is far otherwise with those parts of the body which are not so continually telegraphing the sensorium. Take the mucous surface which comes next to the skin and special organs of sense, in relation to the outer world. In the healthy condition of the digestive membrane no sensation is caused by the food from the time it leaves the gustatory part of the apparatus till its final expulsion, notwithstanding all the wonderful changes it undergoes, mechanically and chemically, as well as the immense variety of secretions which it causes to be poured out on the several portions of the surface which it traverses. The membrane seems equally insensible to the variations in the temperature of the solids and liquids applied to it. A man in health may therefore attain to extreme old age, and by reason of his health, and consequent unconsciousness of internal organs, be as ignorant as an infant of the topography of that tube by which he has received his life and strength. A like remark might be made as to the bronchial and other mucous surfaces; and if it be true of the mucous tissue, it is still more so of those which lie still farther removed from the external world, whether as serous linings or as textures composing the parenchyma of viscera, or the fabric of muscles, bones, &c.

Now though all these parts may be most accurately known by the anatomist, and though he may therefore apply the knowledge analogically to his own person, yet it will be very difficult for him to localize a new sensation, such as pain, by mere reference to his simple consciousness, without experience and inference; for mere consciousness will not distinguish mucous membrane from cellular, nor this again from serous. He will arrive at any correct localization only by a series of experiments and inferences. Some of these consist of observations on the effects of change of posture, or of the relative movements of other parts of the body, or on pressure with the hand, and on the influence of the outer air, or of the contact of foreign bodies, or of food or drink. But others are of a purely medical nature, and depend on previous knowledge of the functions of the parts, the products by secretion, &c. Were he the subject of subacute peritonitis he would need the information of pressure, and of the action of the abdominal mus-

cles. And to say whether a pain in his side were pleurisy or intercostal rheumatism would require all his clinical knowledge.

These difficulties then which we meet with when referring to consciouness as distinguished from inference, for information as to the seat of pain in general, have peculiar force when we appeal to it for the source of pain in Headache, The patient may entertain a dim idea that it is internal; or the tenderness of the scalp may make him think it external, but as to anything like exact information as to the parts which lie within the cranium, it would be absurd to look for it as the result of consciousness.

We have already hinted that these impediments to our knowledge of the source and seat of pain are enhanced by the fact that pain is easily diffused beyond its original source, or transferred in what we call sympathy. There is an obvious distinction to be drawn between the radiation of painful sensation, and the transference of sensation from one part to another. In the former case pain simply extends circumferentially beyond the part which is impressed by the disturbing agent. Physiologists are agreed that impressions are not communicated from one nerve to another in the way of anastomosis, but that the impressions travel separately along each individual primitive fibre to the sensorial centre.

Now, though nerves do not communicate in their course, a hundred facts show that there is a most prompt and intimate connexion between the related vesicles of the central parts in which they terminate. It is by such a communication that that association of sense and ideas takes place which refers the new sensation to a particular part of the body. Say that a wasp has stung the dorsum of the foot. The nervous fibre on which the painful impression has been made, is so related at its central extremity with the nerves, whose several communications have by frequent association or coherence formed that complex idea, that bundle of recorded sensations which we label *dorsum pedis*, that the pain is at once referred to this part, and for a short time there may be nothing present to the consciousness but the point of pain, and the idea of the foot. But in an irritable habit the pain may soon extend to the whole foot, or even the whole limb, without any corresponding extension of the local irritation caused by the wasp poison. The fault is not in the periphery but in the centre. That condition of the central part in which pain consists is communicated to other like central parts, and their pain is by the law of their being referred to their several peripheries. In different subjects there is a vast difference in the readiness with which these communications are made. Persons are called irritable, nervous, susceptible, hysterical, when the proclivities to such communication is very marked. Such persons may also feel pains which have taken their origin from mere ideas. A bodily pain is described, and the idea of the pain is so vivid, and so readily yoked with the idea of the part, that it seems to be projected into that part, being, however, a purely spectral pain—just as a visual conception

may be so vivified as to produce the same effect and conviction of reality as if it were a direct outward perception.

It is not uncommon for a person to be able to produce a sensation of cold through the frame by merely recalling some disagreeable sound or feeling of touch, which has elicited such sensation of cold. I know a person who is so distressed by the touch of woolly substances, especially coarse green baize, that when the mere idea of such a substance is recalled to his mind, he suffers a sort of horripilatio. I also know an individual who is particularly liable to a kind of vertigo on ascending a ladder, and who can not only bring on the feeling by imagining to himself some giddy height, but who also actually feels when under the influence of the same idea a sensation of pain in the soles of the feet. There is an obvious physiological relation between the plantar nerves and the feeling of equilibrium; but that the mere idea of a vertiginous situation should cause actual pain in these nerves which are only inferentially known to be connected with equilibration, seems to me to be a curious and interesting fact.

There are certain well-known sympathetic pains which do not come within the scope of the law of radiation or diffusion. Such are the pain of the shoulder in hepatic disease, but which in my experience has been oftener related with diaphragmatic pleurisy, the pain of the knee in disease of the hip-joint, the pain along the genito-crural nerve from calculus in the kidney or ureter, the pain over the eye from ice applied to the interior of the stomach, and itching of the nose from ascarides in the rectum.

In these instances the impression is conveyed along certain nerves, reaches their centre, and without awakening a sensation in it, passes on to the vesicular termination of some other nerve either near or remote. When the origins of the nerves are so near as that of the phrenic and that of the nerves of the shoulder, the communication between their centres does not seem so difficult to understand, though why the impression should be transferred instead of being participated, is still obscure. With more distant nerves, as those of the stomach, even allowing the gastric branches of the vagus to be the afferent nerves in this case, it is not easy to see the mode of communication and metastasis between the origin of this nerve in the medulla oblongata, and the origin of the ophthalmic branch of the trigeminus. One thing I think worthy of notice is, that the metastasis is usually from a less to a more sensitive nerve. In the normal state the shoulder is oftener productive of sensation than the diaphragm or liver, the genito-crural nerve than the renal, and perhaps the knee than the hip; and certainly the nerves of the fifth pair than those of the stomach. When a mistake has been made, one can conceive that if two nervous centres are the seats of an impression, the consciousness may, by habit, refer it to that one, and its corresponding nerves, with which it has been oftener brought into relation. I need not say that the mistake is by no means the rule, the sensation being often referred to its real source;

and that when the impression is a very strong one, both parts may partake of it. Thus we have known in a violent diaphragmatic pleurisy the pain in the side attended with equally severe pain in the shoulder and in the neck, to such a degree as, together with the absence of auscultatory signs, to have induced the erroneous belief that the case was one of rheumatism.

We shall have to return to this sympathetic translation of feeling when tracing the causes of headaches. In the mean time it may be remarked, that to the student of final causes some of these morbid sympathetic sensations are all but insuperable difficulties. What warning does that supra-orbital neuralgia give against the ingestion of ice? How seriously have the comfort of patients and the reputation of surgeons been affected by that misplaced pain of the knee! It may be that the general good of the economy may have required that the centres of certain nerves should be so related to each other, and to the nerves which originate the knowledge of localities in the body, that nevertheless in morbid states they may present this false information; but, so far as the sympathetic pain is concerned, it seems, like so much of pain in general, to be an unquestionable evil. Pain may often be curative or prophylactic, as if St. Michael had compelled it to be so; but not unfrequently it seems to be the true friend and servant of Lucifer. Perhaps a more philosophical rationale would be, that made on a certain plan conformable to the general laws of organization, in which decay and death are contemplated no less than genesis and preservation, the organism has pain for one of its destructive elements.

Putting aside for the present any reference to the patient's feelings, what do we learn from anatomical considerations as to the probable source of pain within the cranium when a person is the subject of headache? It does not appear to be in the nervous matter, whether vesicular or tubular, of the cerebral hemispheres or of the cerebellum. No evidence of feeling has been obtained by vivisectors till they approached the sensory ganglia—the thalami optici and corpora quadrigemina. But these are the centres of sensation to all parts of the body, as well as to the head. All analogy must further look for nerves as the source of the pain (though some writers are hardy enough to doubt the necessity of nervous matter as instrumental in sensation.) And what are the nerves? Numerous as are the nerves which come out of the cranium, there are to a superficial view very few that go into it. A branch of the sub-occipital accompanies the vertebral artery; but a large majority of the other nerves, destined for intracranial purposes, are derived from the sympathetic. These, then, are the nerves which are of the chief interest to our present inquiry. Nerves of this class accompany blood-vessels; and when we observe the large amount of these vessels, the brain and its membranes being more liberally supplied with blood than any other organ, the quantity being computed as one-fifth of the blood of the whole body, we might,

without searching further, feel convinced that there must be a correspondent supply of ganglionic nerves. But the minute examination of modern anatomists has tracked them in great abundance.

If we may trust the delineation in the plate representing the cephalic termination of the Great Sympathetic, in the magnificent work of MM. Bourgery and Jacob, which plate embodies the results of the dissection on which was founded the memoir presented by M. Bourgery to the Academy of Medicine, there is a vast interlacement of nerves at the base of the brain, derived from the plexuses of the vertebral, the basilar, and carotid arteries, mingled with threads communicating with the third, fourth, fifth, and sixth pairs of cranial nerves, besides branches in the cavernous plexus derived from some of the upper cervical nerves, as well as those connected with the pituitary body otherwise called the cephalic ganglion. The nerves proceeding from this network and accompanying the arteries of the brain must possess the mixed endowment of the several sources. But whether or not the sensory properties of ganglionic nerves are entirely dependent on the cerebro-spinal fibres contained in them, as Valentin believes, or whether they arise from the grey fibres which become sensitive when altered by disease, as Volkman supposes, these are questions which it would be irrelevant to discuss on the present occasion.

It is enough for us that the composite nerves of this class seem to fulfil almost every conceivable function of a nerve. Whatever they may effect on the chemical processes of the molecular laboratory of ultimate tissue; whatever regulation they give to the blood-vessels, it can scarcely be doubted that in many parts of the body they send messages of pain, if not of pleasure, to the sensorium, and that they transmit influences from the seat of emotion to the parts where they are distributed, and it is not proved that they do not possess a kind of reflex function. They only seem not to attempt to convey motor impulses from the will. That our general sense of well-being must derive its favourable tidings from the viscera through these nerves can hardly be doubted; but certainly there is no other channel through which flow the miseries and anguish of ordinary visceral disorders.

Admitting, then, that the ganglionic nerves distributed through the brain and its membranes are implicated in painful affections of the organ, our next inquiry would be turned to the agencies which so act upon them as to cause painful feeling. Some of these are obviously local changes in the cerebral structure from organic disease, inflammation, and injuries. There are also changes in the blood, as in the headache of fever. But there are also disordered states of the nerves themselves resulting from functional causes, as in excessive mental exertion and emotional excitement. Other causes again act by sympathy; through the nerves of special sensation for instance, as when vivid light and loud noises excite headache. There are also very familiar examples of pain in the head, occasioned by impressions on branches of the fifth pair, as well as on gastric and intestinal nerves. —*Med. Times and Gazette, March* 20, 1858, *p.* 287.

18.—*Use of Phosphate of Zinc in Epilepsy, at the "Dreadnought" and Metropolitan Free Hospitals.*—During the last two years Dr. Barnes has extensively tested the restorative and curative powers of phosphate of zinc—a new remedy introduced by him in the treatment of epilepsy and other nervous affections resulting from cerebral exhaustion. This physician was led thus to combine phosphorus and zinc by reasoning upon the known efficacy of zinc in epilepsy, and the fact that in exhausting nervous diseases there appears to be a waste of phosphorus in the brain matter. The importance of phosphorus as an element of the organization is further exemplified by the richness of the more nutritious cereal grains in this substance. It therefore seemed a reasonable indication to administer the two elements in combination. Experience has fully justified this idea. In convalescence from fevers, which induce great wasting of tissues, and notably of brain-matter, to the extent, not unfrequently, of leading to insanity, Dr. Barnes has exhibited the phosphate of zinc with quinine and other remedies with the most satisfactory results. In combination with conium, it is frequently exhibited with advantage in phthisis in preference to the sulphate of zinc. But it is especially at the obstetric clinique at the Metropolitan Free Hospital that the good effects of this remedy have been illustrated. The following case is a type of a large number:—A woman, aged twenty-three, the mother of four children, was first siezed with an epileptic fit at twelve years old, after a fright. Similar fits occurred frequently since, but were more frequent and severe during suckling, remitting somewhat during pregnancy. She never had convulsions during labour. She usually, whilst suckling, menstruates about five months after delivery, and becomes pregnant. She was suckling, and the fits were frequent, when she was ordered phosphate of zinc, four grains; dilute phosphoric acid, twenty minims; tincture of bark, half a drachm, three times a-day. After taking this for a fortnight, the patient's account was, that the fits were "backened" by the medicine. She had had headache, slight vertigines, but only one fit. She continued for three months improving much in health, and had no return of epileptic seizures. In the menstrual form of epilepsy, when accompanied by exhaustion and anæmia, the remedy has been of equal service. In one case of insanity following on exhaustion produced by lactation for eight months, the phosphate of zinc, judiciously combined with other remedies, completely restored the patient to physical and mental health in three months. Dr. Barnes often refers to the readiness with which the phosphate of zinc adapts itself to the peculiarities of different cases by the facility of combination with various other remedies. He prescribes the dilute phosphoric acid as the proper solvent. With this basis, he combines tincture of valerian, tincture of cinchona, calumba, quinine, or iron, according to the indication present. It is less liable to cause vomiting than the sulphate. The experience of Dr. Barnes is certainly decisive enough to recommend the phosphate of zinc to the attention of the profession.—*Lancet, Jan.* 30, 1853, *p.* 119.

19.—STRYCHNIA, AND ITS USES.

By H. R. De Ricci, Esq., Surgeon to the Ballymahon Hospital and Dispensary.

[In cases of paralysis arising from lesions of the encephalon and in epilepsy, strychnia is absolutely injurious; whilst in chorea and paralysis agitans, it is at best useless.]

The diseases in which I have found nux vomica and its preparations of most use are those where, from some cause or other, the *nervous powers* are not as vigorous as they should be,—where there is a lassitude and a want of tone in the system,—in short, in cases of *functional derangement;* whilst in lesion or disease of the nervous centres, its employment has always proved injurious in my hands. In every form of dyspepsia not arising from organic lesion. its use will be found advantageous, but most especially in the dyspepsia of literary men, lawyers, and scholars, especially when accompanied by constipation. Also in that relaxation of the muscular fibre, total lassitude, and want of tone, for which the physician is so often consulted by ladies who go out much into society; a state almost invariably accompanied by leucorrhœa, indigestion, loss of appetite, and a certain amount of erethismus,—here nux vomica and its preparations will be found of the greatest value. But it is in chlorosis that its efficacy will be really manifested,—for though chlorosis is ranked as a blood disease, it is more strictly speaking, a disease of impaired innervation; and the deficiency of red discs in the blood, which causes the peculiar greenish yellow colour of the patient, and from which very appearance the name of the disease is taken, is the effect of imperfect assimilation, the primary cause being either an impaired or perverted action of the nervous functions, a fact which will be apparent to the most superficial observer: for how often will be found, out of a large and healthy family, one of the daughters, *and one only*, acquiring by degrees the pallid look of incipient chlorosis, while all the rest retain their wonted healthy aspect; and yet the sickly one has all the while been exposed exactly to the same physical conditions, breathed the same air, dwelt in the same rooms, eaten the same food,—why then should this one be deficient in blood-discs? If now the careful physician searches into the cause, he will, in all probability, find out by degrees that, some time previous to the setting in of the disease, the patient had suffered from some strong mental emotion, a sudden fright, or sudden unexpected sorrow,—and from that had dated the commencement of her illness.

By far the greater number of chlorotic cases which I have met with in the upper classess had their origin in some such mental impression, and this fact would of itself, I think, be sufficient to characterise this disease as one of deranged nervous function, even if we had not the corroborative testimony derived from medical treatment. Now, if a [illegible] such as I have supposed, is treated solely with chalybeates, but

little progress will, in all probability, be made towards recovery: in vain you will administer the metal so much needed by the system,—the lacteals will fail to discern and appropriate it. It will pass away by the bowels, and there do mischief by increasing the constipation already, most probably, existing. To remedy this the usual purgatives of aloes and other such drastics will be recurred to, probably in heroic doses, and then, by increasing the debility, the patient will be placed in a worse condition than before. Let, however, the iron be combined with quina, a medicine which I need not say acts especially on the nervous system, and the improvement will be manifest; but if for quina you substitute strychnia, then the effect will be truly surprising. Until lately I was in the habit of adding the strychnia in solution to a bitter vegetable infusion containing some preparation of iron, generally the citrate, but my friend Dr. Aldridge having brought under my notice a double citrate of iron and strychnia, analogous to the well-known preparation of iron and quina, I have adopted its use with marked advantage and success. This salt contains, I am told, one grain of strychnia in every hundred. The dose I have been in the habit of commencing with has been two grains twice a-day, immediately *before or after* a meal, selecting in preference breakfast and lunch, and increasing its gradation to ten and fifteen grains twice a day. My prescription has generally been the following:—Citrate of iron and strychnia, forty-eight grains; chloric ether and aromatic spirit of ammonia, of each a drachm and a half; infusion of chiretta, sufficient to make a twelve ounce mixture: of this, a table-spoonful at dinner and lunch. By the use of this combination the troublesome constipation, frequently alternating with diarrhœa, so often accompanying chlorosis, will be entirely obviated; the bowels will resume their healthy action, in consequence of their peristaltic motion being improved, and the lacteals and absorbents being aroused to increased action, will seize upon the metal and rapidly assimilate it. The combination of strychnia with iron will also tend to check that excitability which manifests itself under so many and varied forms in this disease, and will correct that lassitude which is one of the characteristics of this malady. In illustration of what I have been asserting, I shall subjoin the account of a case which I had ample opportunity of watching and absolute control over, trusting that the details may not prove uninteresting.

The patient, a young lady, aged 17, had been for some months declining in health; she had a slight husky cough; total loss of appetite; great palpitation of the heart on the smallest exertion; and was pallid in the extreme; but she had not the peculiar *greenish yellow* of chlorosis; it was rather the washy look seen in cases of excessive hemorrhage,—with all this she was not at all emaciated, but, on the contrary, quite plump. Her family were in great tribulation about her, as some of her relatives had died of consumption, and the young lady herself was convinced that she had disease of the heart, from the

pain she suffered almost incessantly in it, and the fearful palpitation which arose on the smallest exertion. Several physicians, both in Dublin and elsewhere, had examined her, and some feared there was incipient valvular disease. Sir H. Marsh had, however, given a decided opinion that the derangement was solely functional; and, after the most careful and repeated examinations, I came to the same conclusion, although the following peculiar symptom led me, for some time, to fear a threatening of disease of the mitral valve. When the heart's action was at all excited, its sounds got so tumultuous and mixed up, that it was impossible to discriminate one from the other; but when it was comparatively tranquil, by placing the stethoscope over the apex of the heart, one could hear, amid the irregular pulsations and clicks of that organ, a prolonged musical note, apparently synchronal with the first sound. There were also marked venous murmurs in the jugulars, especially in the right one. But as the case progressed to a cure all these abnormal sounds first diminished, and then ceased altogether, thus proving them to have been only due to functional derangement. Before coming under my care this lady had been taking chalybeates abundantly, and in every variety of combination with tonics. She had taken, among others, a quantity of valerianate of iron, but without any apparent amendment. I at once put her on strychnia and iron, which, in this case, I employed as follows:—One grain of strychnia was dissolved in two minims of sulphuric acid, added to thirty ounces of water, in which one drachm of ammonio-citrate of iron had been dissolved: the whole was then placed in a gazogene, and charged with carbonic acid. The dose was one wineglassful daily immediately before lunch. The amendment commenced before the end of the first fortnight; the bowels, that had been always obstinately constipated, acted now of their own accord; the want of appetite, which had actually amounted to a disgust for food, disappeared; the colour returned to the face; the heart ceased to beat irregularly, and at the end of three months, there was not a trace of the former delicate sickly appearance.—*Dublin Quarterly Journal, Feb.* 1858, *p.* 47.

20.—ON CHOREA.

By Dr. Thos. Addison, Senior Physician to Guy's Hospital.

[The case which Dr. Addison takes as the test of his clinical lecture is that of a boy aged eleven years, of delicate strumous habit, afflicted with hemiplegic chorea. Dr. Addison was particularly careful to listen to the action of the heart, and to examine the state of the skin for reasons explained below.]

Now, whenever I see a young subject the victim of chorea, I always suspect that it has had its origin in rheumatism. I felt this boy's skin to discover if he had that sweaty surface, so characteristic of

rheumatism. I listened to the heart, and what did I find? Loud mitral bruit. And what do we learn in going over the previous history, as noted by the clinical clerk? We find that about three years ago he had rheumatism; and here I may tell you, that you will often find, under the name of severe "growing pains," that you have had, in point of fact, a veritable attack of rheumatism. Are we to believe this mitral bruit was the result of rheumatism, or not?

Believe me, rheumatism is a very eccentric disease; I know none more so. There is no disease, perhaps, of which we know really so little as rheumatism in its pathological essence and nature! An old physician of considerable experience was asked, What is the cure for rheumatism? His answer was laconic: "The cure for rheumatism is —*six weeks!*" In other words, rheumatism must be let cure itself. I have cut rheumatism and rheumatic gout short in less than half the time with colchicum, or the powdered cormus and sulphate of magnesia, and other things; but I am not so certain that cutting rheumatic gout short by potent measures is quite the same thing as curing it. Let us, however, at all hazards mind the heart in these cases.

Rheumatism is a queer or eccentric disease, I have said. Now, it is my belief that rheumatic disease, whatever it is, *sometimes attacks the skin alone.* It is my firm belief that it sometimes attacks the heart alone. I know the rheumatic skin well; and I am satisfied also about the ravages committed by this so-called rheumatic inflammation in the endocardium and pericardium, and that, too, without any pain to attract attention. I see the rheumatic skin; and when I do, I almost with certainty predict rheumatism, which is sure to supervene. One may sometimes find the heart inflamed, by itself, but you will do well to look out for rheumatism in the joints and their synovial or ligamentous tissues. This pericarditis is of a marked kind, with no pain about the heart.

But you say, What has all this to do with chorea? Well, what the relations are is not clearly made out; but that there is a connection or relation is perfectly evident. If we look at it in this way, we find, for instance, in acute endocarditis, the patient's manner is often very remarkable, more so than in pericarditis; he may be even quite delirious or labouring under decided cerebral complications.

Some ability and ingenuity are shown by Dr. Kirkes and others in tracing certain clots or shreds of fibrinous matter, as washed from the endocardium into the brain, causing irritation there. On the continent, I find they look on the matter in a less mechanical way, and they say a poison—say, like that of some other serous effusions—is carried to the brain from the rheumatic deposit in the endocardium, I am afraid we have too many analogies in pyæmia and other affections to give stability to this hypothesis.

There are several curious associations, I have said, between the brain and heart; epilepsy, for instance, affects the heart. Sometimes a fit of epilepsy extends itself in a violent tumult of the heart. I

was consulted some time ago by a gentleman—a manufacturer at Huddersfield, or somewhere down there—for some curious functional derangement of the heart. I told his family doctor it was epilepsy of the heart; and I believe my friend thought I did not know what I was saying, and smiled at me; but the epilepsy of the heart, with those curious fits of unconsciousness, he could not understand; and how puzzling they are you will find when you get into private practice; so that you cannot give too much attention to them. Well! these anomalous fits of unconsciousness and tumultuous palpitation ended, nevertheless, in regular fits of epilepsy—some of the most marked, perhaps, ever seen. I do not pretend to explain how this is brought about; I only know the practical bedside fact. The relations of the fit in epilepsy itself are very peculiar; but emotional influences will produce palpitation of the heart: and, I suppose, in some such way, epilepsy produces it as a sort of first of "three warnings." Emotional influences of fright will cause chorea; in fact, it is the most common of all causes of the disease. A dog runs after a child; a ghost story is told by a foolish nurse; a house takes fire, and a child is exposed to danger; the child, perhaps, is seized with chorea: some horrible agitation is set up in the emotional (or central) parts of the brain, and chorea fits are the result. The complication or connexion of chorea and heart diseases is so common that I always look for it. See in that case of gout, on the other hand, in that poor woman in the other part of the ward, you can scarcely tell it from rheumatism; she has renal disease, with gout in her foot; but her heart is perfectly free, and, in all probability, will continue free. How curious these peculiarities are!

Yet gout and rheumatism are pathological first cousins; but why does one affect the heart, the other not? I cannot tell you. Well, we gave this boy a mild mercurial first, to settle all right in the *primæ viæ*, and we shall follow that up with the sulphate of zinc, in which I have great faith as a remedy in chorea. At Guy's, at least, we have not yet hit on any thing equal to it.

These poor patients with chorea are often very ludicrous, but very distressing to observe. I have seen four or five deaths from the excessive exaggeration of the chorea symptoms; like lizards or eels, such patients are contorted into a myriad of forms; they glide and twist and tumble about the floor and out of bed or into the fire! I have known chorea to begin with pregnancy, and go on increasing as the poor big-bellied woman got bigger and more unwieldly, and only yield when the uterus became empty again! Dr. Hamilton once thought purgatives cured chorea; but I do not believe this is invariably found. Sulphate of zinc or oxide of zinc is the remedy we have made out as most valuable at Guy's. I have known a patient take of sulphate of zinc (not oxide, mind) so much as eighteen grains four times a-day. My attention was once drawn by the late Dr. Chambers. to a peculiar cast of countenance such patients acquire who are tak-

ing these very large doses of zinc: you know, of course, the dark tint or tinge produced by nitrate of silver. the dark line of the gums by lead, &c. We were attending a patient for another disease altogether, and though Dr. Chambers could not describe what it was, he said, to some one in the apartment, "Why, you are taking zinc, are you not?" and it turned out that he was. The nearest idea I can give of the zinc complexion of face is, that it is destitute of the freshness and cherry redness of rude health, and the skin of the face assumes a glossy sameness of tint very like pewter; in fact, Dr. Chambers knew the "pewter face" very well; it requires the light to fall in a particular direction, and then you will see it: the hint may be of use to you. We will now say a few words about the patient in the bed No. 20. He has been in the habit, he tells us, of carrying heavy loads on his head; this, I need not say, produces a strain on the muscles about the neck, and pressure on the veins. Well, he has had fits of unconsciousness, and now has excessive pain of a neuralgic character in his limbs. We had a man not long since under care, you recollect, with what I called "*ligamentous rheumatism*." I have seen more than once this sort of ligamentous rheumatism attacking the delicate ligaments, the odontoid, and others of the articulation of the axis and occipital bone, and others of the axis and atlas; in one case of a boy it threatened to end in universal paralysis, as the thickened membranes no doubt pressed on the medulla oblongata, producing a somewhat common disease, myelitis of the medulla oblongata or chord, or perhaps mechanical pressure. In a woman woman with the same disease I verily believe we saved her life by keeping the head, almost in splints, perfectly quiet. We will adopt the same plan in this poor man; we shall support him and prescribe cod-liver oil and tonics, and you will see the result.—*Med. Circular, Dec.* 9, 1857, *p.* 277.

21.—ON SOME OF THE PREVALENT ERRORS IN RELATION TO THE PREDISPOSITION TO HYSTERIA.

By M. Briquet.

M. Briquet believes that most writers have been indebted more to their imagination than to the observation of facts for the pictures they have drawn of this disease. It has been attributed by most of them either to unsatisfied sexual desires or to excessive excitement of the uterus and its appendages, and a fanciful etiology to correspond has been invented. The object of this paper is to show that these and other preconceived ideas have no solid foundation in fact.

1. The *hysterical constitution*, about which so many positive assertions have been made, has in fact no existence—the affection occurring in women having the most opposite external appearances. The author examined 425 cases of hysteria in this point of view: of these, as regards height, 127 were tall, 168 medium size, and 106 short: as to

strength, 99 were strong, 36 medium, and 26 weak: as to flesh, 194 were stout, 106 medium, and 92 thin and spare: as to colour, 220 were fair, and 164 dark, 27 having the hair light, 39 black, 177 light chestnut, and 188 deep chestnut. In 168 the face was pale or brownish, and in 174 fresh coloured. Thus it will be seen these were the ordinary varieties met with among women in general.

2. The *temperament* is also various enough.—The following is the classification M. Briquet made of 383 cases. In 143 it was lymphatico sanguineous, in 125 lymphatic, in 91 nervous or lymphatico nervous, in 12 bilious, and in 11 sanguineous. These are evidently very much the proportions that are found in females of from 15 to 30, part inhabitants of the country, and part of the towns, as was the case with these. At all events, there is no temperament that can properly be called hysterical.

3. *Moral Disposition.*—That which is not discoverable in the physical constitution of hysterical females is, however, very evident in their moral disposition. So much is this the case, that of 430 cases occurring to the author, not more than 20 at the utmost have not manifested it. The characteristic of this is marked *impressionability*, foreshadowed in childhood by great timidity, excessive susceptibility to blame, and a disposition to shed tears easily.

4. *Mode of Life.*—Another of the axioms that has been laid down as undoubted, is that hysteria is the prerogative of the wealthy and luxurious, and that poverty is a security against its occurrence. It is a complete error; the common people being the subjects of hysteria in almost a double proportion to the other classes. At a particular epoch M. Briquet visited all the female patients in the medical and surgical wards of La Charité, with the exception of those suffering from epilepsy, apoplexy, insanity or delirium. The number amounted to 203, and of these 65 were hysterical (38 with convulsive paroxysms), 49 were impressionable, and 89 only were neither hysterical nor impressionable. Thus, among the common people there was 1 woman in 5 who had hysterical paroxysms, and 3 out of every 8 were the subjects of hysteria. So far from being exaggerated, the statement is rather below the truth. But where is the practitioner who meets with 3 cases of hysteria among 8 of his private patients? According to the experience of many M. Briquet has consulted upon the subject, there is about 1 in 8 or 10 in the easy classes of society, not alluding to the very highest. The charms and simplicity of a country life, too, have been sufficiently praised, and nervous diseases have been said to be the almost exclusive affliction of civic life. M. Forget, in 1847, somewhat startled this belief by showing how frequently hysteria occurs among the simple Alsatian peasantry. M. Briquet has obtained cognizance of the place of abode and of early education in 324 cases of hysteria, and of these 168 were townborn and bred, and 156 from the country—the majority of these latter having in childhood laboured in the fields. In the case of 42 of these country girls their mothers had

been hysterical, 29 suffering from paroxysmal attacks. Professor Lebert of Zurich also assures the author that hysteria is just as often seen in the poverty stricken cantons of Switzerland, as in the most flourishing ones. A too tender and luxurous education has been assigned as a predisposing cause; but of 81 cases of hysteria occurring before the age of puberty, in 21 the harsh treatment they had been subjected to was the principal cause of the disease. A third portion of the author's collection of cases had been submitted to ill-treatment or privation during childhood. In place of a tender education being assigned as a predisposing cause it would be more just to thus stigmatize a harsh one.

5. *Continence* has been stated by many authors as an unnatural condition, predisposing to hysteria; but when it is remembered that the majority of cases occur between 12 and 20, we naturally ask at what age it becomes unnatural, as also for the explanation of the occurrence of the disease in 86 children under 12 years of age. Various authors since the time of Galen have deplored the fate of widows, as the necessary victims of hysteria; but in point of fact their solicitude has been little needed, insomuch as among 375 cases collected by Landovzy only 12 of the subjects were widows as were only 14 in the author's own 430 cases, *i. e.* 26 in 800 cases, or 1 in 30. Of the author's 14 cases, too, in 6 the hysteria appeared on the day of the husband's death, and in 4 during the first month after it, and should surely with more probability be referred to moral emotion. Hysteria has been said to be, on the one hand, common among nuns, and, on the other, rare among women who give free vent to their sexual desire. But in point of fact it is rare in convents, and is chiefly found in those in which there is great fasting and maceration. The reverse position so strongly maintained by authors may also be disposed of. Thus of 300 hysterical females above the age of 15, 139 were married or kept women, and among them had 367 children, not counting miscarriages. Among the 161 remaining, very few resigned themselves to continence. At the Lourcine, where syphilitic workwomen and servants repair, among 424 patients, 169 were hysterical. As to prostitutes, of 197 applying to St. Lazare on account of syphilis, 106 were hysterical, 28 very impressionable, and 65 neither hysterical nor impressionable. It results from all this that continent women are rarely hysterical, those who do not observe continence are frequently the subjects of hysteria, while those who pursue the extreme of incontinence are the most liable of all. The reason is obvious. Among these different classes of women, the first lead peaceable lives, the second have much to go through, while the last are a prey to frequent and violent emotions. Next we may consider the effects of marriage on hysterical women, which, to judge from the statements made, have been truly remarkable. But among M. Landovzy's, and the author's 800 cases, in only 29 instances did decided advantage follow marriage, notwithstanding the complex character of the modifications ensuing upon this state.

6. *Menstruation and Affections of the Uterus.*—This class of influences has been raised to the highest rank by those writers who are determined at placing the seat of hysteria in the uterus. 1. This has been supported by the supposed effects of normal or abnormal conditions of the menstruation. From the author's observations, however, made on 411 hysterical women, in but 136 had there been any derangement of the menses. Of 237 deliveries of hysterical women in but 12 were there any convulsive paroxysms, some of which too might have been examples of eclampsia. 2. According to authors it is common to observe hysteria in affections of the uterus. Now these diseases are exceedingly common, and the connexion ought to be easily demonstrable. But this is not the case, for Landovzy and other partizans of the opinion are able to collect but some 40 cases of affections of the genital organs giving rise to hysteria—few enough as compared with the thousands of cases daily occurring. Practitioners, moreover, having much to do with the various female diseases entirely deny such connexion.—*Union Médicale.*—*Med. Times and Gazette, Oct.* 31, 1857, *p.* 458.

DISEASES OF THE ORGANS OF CIRCULATION.

22.—PERMANENT PATENCY OF THE AORTA WITH ENDOCARDITIS.

By Dr. CORRIGAN, Physician in Ordinary to the Queen in Ireland.

[The case was that of a labourer previously in good health, but two months since being exposed to the wet a whole day, he was attacked with cough and occasional palpitations. Seven years ago he had an attack of rheumatic fever, and was then cupped and blistered over the heart, but from that time till lately he continued well. On admission into hospital, debility and fits of angina were his prominent symptoms. The action of the heart was very weak and slight œdema of the legs appeared.]

The symptoms of permanent patency were well marked, and I need only briefly recall them. They were. extensive dulness on percussion over the precordial region, corresponding with the increased size of the heart; double bruit over the middle and lower sternal region; single bruit. in carotid and subclavians, with well-marked fremissement in these vessels in both sides of the neck, best felt by laying the thumb longitudinally in the supra-clavicular space over the subclavian arteries, where visible pulsation was also most strongly marked.

The first instructive point in the case is, that we are able precisely to mark the dates of the two pathological states in the heart. The older deposit of ligamentous tissue in connexion with the valves, we can have no doubt, took place seven years ago, in the attack of rheumatic fever; and we learn from it how little may mere mechanical

alteration, when not of great degree, interfere with the action of the heart, and even long-continued bodily exertion. In this case, for seven years, the man followed the occupation of a labourer, and his able muscular development fully bore out his own statement, that during that long period he had suffered no inconvenience. I recollect an instance of this disease, in which the person labouring under it was the medical officer of an extensive country dispensary, the laborious duties of which he continued to discharge for fifteen years, with very little inconvenience, and eventually died from another cause.

When the endocarditis, however, in our patient's case, which had been hanging over him, probably, from the period of his wetting, set in with full intensity on the 14th inst., then came with it an attack of angina, and suddenly weakened action of the heart; and under these repeated attacks, with a continuing weakened action of the heart, he at length sank, and died after seventeen days.

'We thus from this case learn this important lesson—that in the sudden exacerbations that will sometimes occur in valvular diseases, we have to deal with some vital derangement, rather than with the mere mechanical defect. The mere valvular defect in the case before us had undergone no change; but on endocarditis setting in, arising partly from the wetting, but excited also by the previously-existing morbid deposit, this vital derangement, added to the prior mechanical defect, was sufficient to cause the alarming symptoms under which the patient sank. Endocarditis is at all times a most dangerous and suddenly-depressing disease, but the more so when engrafted on previously diseased tissue. It may be asked, why did the action of the heart become suddenly so weak, and remain so notwithstanding all the stimulants exhibited, although its muscular tissue seemed healthy as usual. This phenomenon appears to me to be in accordance with what we observe of muscular tissue in analogous instances. When the pleura costalis is acutely inflamed, the intercostal muscles will not act. When the peritonæum is inflamed, in most cases the muscular fibres of the intestines will not propel their contents; and when a joint is inflamed, the muscles in connexion with it will obstinately refuse to act, no matter with what efforts the patient may attempt to command them. Thus it is, I believe, where the lining membrane of the aorta or of the left ventricle is acutely inflamed. The muscular fibres of the left ventricle will not act with their accustomed force; and if the inflammation be sudden and acute, and over a great surface, as in this case, involving aorta and lining membrane of ventricle together, the action will become so weak as to cause syncope and death.

What are the lessons as to treatment that we learn here?

1st. That no matter what may be our opinion of the extent of endocarditis, we must meet the depression with stimulants and opium, and particularly with a full anodyne at night; and next, that if we can obtain a rally, we shall, as soon as possible, superadd local bleed-

ing, blistering, and the use of mercury, to check the effusion of lymph, and to promote the absorption of what has been poured out.

In connexion with the treatment of pericarditis and endocarditis in the sub-acute stage, I have now a few observations to make on one of the most important agents in their cure—namely, rest, and abstinence from stimulants.

If a joint has been inflamed, a patient is quite satisfied, because he sees the inflamed joint before him, and because the part is endowed with animal sensibility, to keep it at rest for weeks or months. He understands perfectly that if he do not, deformity, and perhaps disorganization, will be the result; but the necessity of the same rule does not often come sufficiently forcibly to either patient or physician in convalescence from endocarditis or pericarditis, because the part affected is out of sight, and is not endowed with animal sensibility; and thus, after, perhaps a short time, patient and physician both become impatient, and instead of rest and mild nutrition, tonics, wine, strong food, and exercise are had recourse to, and with the naturally to be expected bad results. Remember how long it will take to bring round an inflamed joint, even when we can give it perfect rest. Remember that we can in no case give the heart perfect rest, and that it is the more necessary, on that account, to give it as much as we can. Let your patient lie for weeks on a sofa or bed, in convalescence for pericarditis or endocarditis. Always bear in mind that you have, as it were, an inflamed joint within to deal with. Abstain from stimulants, or give them most sparingly. Keep the action of the heart as quiet as you can during the day, and give an anodyne every night, and you will see recoveries that will occasionally surprise you.—*Dublin Hospital Gazette, Jan.* 1, 1858, *p.* 2.

23.—OBSERVATIONS ON HÆMOPTYSIS.

By Prof. TROUSSEAU.

These observations by Professor Trousseau chiefly relate to the diagnostical and prognostical value of hæmoptysis. He observes that on finding an individual spitting blood, the first idea that presents itself is the existence of pulmonary tubercle; but if we note all the cases that present themselves, not in private but in hospital practice, we shall find the hæmoptysis as often dependent upon other causes as upon tubercular disease. This statement, paradoxical as it may seem, is quite true when confined to hospital patients.

A form of hæmoptysis that is rarely met with in hospitals is due to *hemorrhagic deviations.* We meet with women who, without suffering from any notable disturbance of menstruation, but who are the subjects of nervous symptoms, spit blood frequently in considerable quantity. Neither the symptoms nor attentive exploration of the chest, indicate any affection of the heart or lungs; and when the

period of menopausis arrives the hæmoptysis becomes arrested, and does not return. Other women spit blood during pregnancy or lactation, and cease doing so when these conditions are terminated. These nervous women are also sometimes the subjects of menorrhagia, seeming to be under the influence of a hemorrhagic diathesis; and when the critical discharge does not take place by the uterine mucous membrane, it does so by the bronchial membrane. Although these hæmoptyses are not of the importance that might be supposed, and may be reproduced at longer or shorter intervals during several years, it must be borne in mind that this frequent repetition may induce a congested state of the respiratory apparatus, during which even a slight accessory cause may give rise to a more or less dangerous phlegmasia. Independently of abnormal circumstances, we may meet with hæmoptysis occurring, so to speak, as a physiological accident, supplying the place of a natural or accidental discharge of blood, which from some cause or other does not take place by the ordinary channel. Thus, in women with obstructed menstruation, it is one of the most frequent forms of *hemorrhage supplementary to menstruation.* It will be readily understood that when with this peculiar disposition of the economy there is combined another dependent upon a local predisposing condition of the pulmonary apparatus, these hæmoptyses are still more readily produced. Under such circumstances the prognosis of hæmoptysis is far more serious than when it arises from hemorrhagic deviations unconnected with local occasional causes. Here, in fact, the accidents become complicated with the local lesion which has led to these manifestations, just as this itself is necessarily complicated by the fact of the fluxionary hemorrhagic movement, which at each return accelerates the evolution of such lesion.

As already observed, these varieties of pulmonary hemorrhage are rare in hospital practice. The form of the affection, however, there most commonly met with is not hæmoptysis dependent upon phthisis, but hæmoptysis dependent upon disease of the heart. It is not meant by this to declare in an absolute manner that tubercular hæmoptysis is of rarer occurrence than hæmoptysis dependent upon disease of the heart, but only to state that in phthisis, hæmoptysis being in general a transitory condition, occurring early in the affection, the patients do not come to the hospital, while hæmoptysis dependent upon heart disease occurs principally when the disease is much advanced, and consequently, at the period when patients are obliged to resort to the hospitals. Proceeding to consider some of the points of diagnosis between these two forms, we find that in youth, adolescence, and the early period of mature life, from the sixteenth to the fortieth year, hæmoptysis most generally is dependent upon pulmonary tubercle, and that whether it is met with in hospital or private practice; but after the fortieth year, and still more after the fiftieth, it is no longer, generally at least, a sign of phthisis, but of disease of the heart. There are exceptions to this rule, but they do not invalidate its gene-

ral truth. In phthisis bloody expectoration may either precede any other manifestation of the disease, of which it may then be considered the earliest symptom, or it may appear in the course of the affection. Laennec indicated its slight quantity as a characteristic, and regarded very abundant hæmoptysis as almost always due to pulmonary apoplexy. But he had little opportunity of observation in private practice. It is true that in general hæmoptysis is not abundant, but still there are cases in which it is overwhelmingly so, causing death by the sole fact of the loss of an enormous quantity of blood. Hæmoptysis, consequent on disease of the heart, is, notwithstanding, still seldomer overwhelming *(foudroyante)* than bronchial hemorrhage. It may recur fifteen, twenty, forty, or fifty days in succession without at once proving fatal. Of course, when dependent upon the rupture of an aneurismatic vessel into the bronchi, it may prove still more rapidly fatal than hæmoptysis supervening on phthisis. Besides the age of the patient and the progress of the symptoms as elements in the differential diagnosis, there is an important point in regard to the seat of the hemorrhage, viz., that while in phthisis it takes place generally at the bronchial surface, in disease of the heart it is most often parenchymatous, first occurring in the pulmonary vesicles.

As to the question of the characteristics of bronchial and pulmonary sanguineous expectoration, it is said that bronchial hemorrhage is observed under the form of spumous, semi-fluid sputa, resembling blood beat up with air, and having a bright redness, deemed characteristic. The quantity discharged is said to be sometimes very slight, and sometimes very abundant, not being mingled with the débris of alimentary substances or mucosities. But this is far from being always the case, as the sputa may be as viscous as those seen in the first stage of pneumonia, or in pulmonary apoplexy, an appearance, probably, due to slight accompanying inflammatory action, or to the accumulation and detention of blood in the lungs. So, too, we may find the discharges mixed with alimentary substances when the hæmoptysis is undoubtedly connecte with phthisis. Stethoscopic signs are often at default, or indicate as much, or even more, the pulmonary lesion upon which the hæmoptysis depends. Generally at the autopsy of persons who have been the subjects of bronchial hemorrhage, we only find, besides the lesions proper to phthisis, redness of the pulmonary mucous membrane, which, indeed, may be due to imbibition. If cavities exist, they may contain a certain amount of coagulated blood, and that usually when vascular ruptures take place within these, otherwise we only find a little blood accumulated in the bronchi.

With respect to pulmonary hemorrhage, we may advert to the erroneous term. "pulmonary apoplexy," which has been bestowed upon it, giving, as it does, no idea of the nature of the affection. It occurs in general during the course of an affection of the heart; and at the autopsy kernels of engorgement are found of as deep a colour

as the spleen, and as hard as those of pneumonia in its second stage. The tissue of the lung is friable, and presents the granular aspect of hepatized tissue, except that while in the latter the vessels and lobular intersections are visible, the hemoptical engorgement presents a uniform blackish, or very deep brown colour. This lesion, which would be better termed sanguineous infiltration, bears no analogy to cerebral apoplexy, the term apoplexy always implying the idea of suddenness and active fluxion, a condition rather belonging to bronchial than pulmonary hemorrhage, which is ordinarily, to a certain extent, passive. There are, indeed, cases of true pulmonary apoplexy giving rise to sudden death, and characterized by the effusion of more or less blood amidst the lacerated lung. The term apoplexy would be much better applied to cases of active congestion of the lung, a not very rare disease, but which is rarely accompanied by hæmoptysis, properly so called. Gendrin proposes to substitute for the term pulmonary apoplexy, *pneumo-hemorrhage*, indicating without ambiguity an extravasation of blood into the tissue of the lungs. As to the distinctive signs in these cases of pulmonary sanguineous infiltration, the expectoration is generally viscous, sometimes red, and sometimes black, and even deep black. But as in bronchial hemorrhage the blood discharged is also sometimes black, so in the pulmonary it is sometimes spumous, and that especially when it is quickly and abundantly discharged.

While lesions of the heart are the usual causes of pulmonary hemorrhage, contraction and insufficiency of the mitral valve is the most common of these lesions, and especially when, as is commonly the case, it is conjoined with ventricular hypertrophy. These hemorrhages are sometimes very considerable, and may recur three, four, six, eight, or ten times in the course of the disease of the heart, at other times, though rarely, they are slight and transitory, and do not reappear. When the lesion is much advanced, the patients may spit blood for one or two months, and sometimes until their death. The disposition of these hemorrhages is, in fact, to increase in frequency and in quantity with the disease of the heart, an effect of which they are, as it approaches its fatal termination.—*Union Méd.—Med. Times and Gazette, March* 27, 1858, *p.* 328.

24.—TINCTURE OF BENZOIN AS A REMEDY FOR EPISTAXIS.

By Dr. B. Fordyce Barker, Professor of Midwifery, New York Medical College.

[The case was that of a delicate child, with disease of the heart following rheumatism. She had had several severe attacks of epistaxis before the one on account of which the author was called.]

The posterior nares had been twice plugged, each time by a distin-

guished surgeon, who had been called in consultation. He represented the present attack as more severe than any she had had before. It had resisted all the remedies which they could apply, and from past experience with such attacks, he seemed quite familiar with all the ordinary methods of controlling such hemorrhages. He had blown alum up the nostril, applied ice to the nape of the neck, plugged the nostril with lint soaked in a strong solution of tannic acid, but still the hemorrhage continued at the rate of 60 drops a minute. She was a feeble delicate child, extremely nervous, and exhibiting the symptoms of extreme loss of blood to a fearful degree. Her lips were colourless, her respiration hurried and panting, her pulse small and wiry, her surface cold, with great impatience and nervous excitability. I at once began to prepare to plug the posterior nares by means of the sound of Belloc. But my patient suspecting what I was about, immediately began to protest with violent screams that she would have nothing of the kind done, and no reasoning or expostulation was able to allay the violent frenzy that followed. I have not found the plugging of the posterior nares, a particularly easy or agreeable operation even with the best subjects, and in the present case I plainly saw that it would be unusually difficult. For some time past I have been accustomed to arrest the severe hemorrhage resulting from malignant ulceration of the cervix uteri, by painting over the diseased surface the tinct. benzoin co. It now occurred to me that this article might possibly prove equally serviceable in the present case. I injected about a drachm, by means of a small syringe, up the left nostril, the passage from which all the hemorrhage came. For a moment or two she complained bitterly of a severe burning pain in the nose, extending back to the ear, but it very soon subsided, and the hemorrhage entirely ceased within five minutes after the injection was used. I remained with my patient about a half hour, and then directed a teaspoonful of elix. paregoric to be taken, and this to be repeated in an hour if she did not fall asleep. She has had no hemorrhage since, and her general health has improved in the most remarkable manner, under the steady use of the syrup of the phosphate of iron.

As a further illustration of the hemostatic powers of this agent, I may mention the case of a gentleman, who had for several years been suffering from internal piles, which had greatly impaired his general health from frequent bleedings.

One very hot morning in June, 1856, I was called to see him on account of severe hemorrhage. I learned, that for several days he had lost a good deal of blood after his morning dejection, but this morning it was so excessive as to induce complete syncope. When I saw him he was still very faint, and there was a constant oozing of blood from the rectum, which was so sensitive that I could arrive at no satisfactory result from physical exploration. With a small syringe I injected into the rectum a half ounce of tinct. benzoin co. as soon as it could

be obtained. Its effects were quite striking. He was at once aroused from his syncopic condition, and since that time has never suffered from the hemorrhage.—*American Medical Monthly.*—*Dublin Hospital Gazette, March* 1, 1858, *p.* 79.

DISEASES OF THE ORGANS OF RESPIRATION.

25.—ON THE ORIGIN AND FORMATION OF TUBERCLES IN THE LUNGS.

By J. L. C. Schroeder van der Kolk. Translated from the Dutch by Dr. Wm. D. Moore, A.B., Hon. Member of the Swedish Society of Physicians, and of the Norwegian Medical Society.

Laennec thought that the origin of tubercles was to be sought in a peculiar matter infiltrated from the blood into the lungs, but which could by no means be the result of local inflammation. This idea has been further developed, especially by Rokitansky, who imagined that the explanation of the origin of tubercles should be found in a general alteration of the blood, in a blood-crasis, of which he assumed certain laws.

The principal characteristic, namely, whereby tubercles in general are distinguished from other matters effused in consequence of inflammation, is found in the peculiarity, that they, especially such as occur in the lungs, have no power of further development, and of becoming organized, as they pass into a state of softening, suppuration, or occasionally into a firmer, hard condition—*cornification*, as Rokitansky terms it—or are converted into a calcareous state; but that no new organic tissue is produced from tubercle. Rokitansky was of opinion, that the cause of this was to be found in a change of the blood, in an original anomaly of the blastema, and that the form and chemical properties of the various exudations should correspond to the primitive morbid changes of the protein matters, and to the anomalous condition of the fibrin in the blood; and thus many a blastema, in consequence of its original nature and composition, should be the cause of its non-development, and should carry in itself the germ of its own destruction.

Rokitansky thus assumes a fibrinous, croupy, tuberculous, albuminous, and purulent blastema, as well as a fibrinous, croupy, tuberculous, albuminous, and purulent crasis of the blood, whence the blastema should be developed of the same nature.

Though I am far from wishing to deny the existence of morbid changes in the blood, which exhibit themselves numerously enough, as well in simple inflammation as in chlorosis and other affections, I can, at the same time, by no means assent to a crases-theory, resting not on certain observed facts, but appearing rather to be assumed *a priori*,

in order to explain the particular properties, especially of tubercle, to which I now confine myself—namely, the peculiarity that they are capable of no further and higher development, and also partly their occasional so general dissemination through the body.

Though albumen and fibrin are deposited unchanged by effusion through the walls of the bloodvessels, they still occur as exudations, everywhere in contact with the nutritive fluid, which is almost always acid, and contains more phosphates and potash salts than the serum; but especially with organic constituents and cells, which have a powerful metamorphosing action on these exudations. They are, by absorption, gradually deprived of their water, and now constantly undergo further changes, whereby they become more and more unlike the original combinations of albumen and fibrin, as the latter are separated from the blood.

Hence it immediately appears how dangerous it is, from the nature and form of this altered tuberculous matter, to infer such an agreement with the same ingredients in the blood, and thus to assume an original peculiar blood-crasis.

Rokitansky appears, however, not to assume in this any change in the tubercles, which he regards as the product of coagulated protein matters, persisting as blastema in the lowest stages of development—that is, in the condition of so-called crudity; this solid blastema it is, therefore, which yields the tubercles.

The view, that albumen and fibrin should be capable of undergoing, even in the blood, such morbid changes as to lose their capacity for further development, is so very much opposed to all ideas of nutrition and assimilation, which still must incessantly go on during life, that we can scarcely imagine existence to continue with the blood so morbidly altered. Yet, if muscles and other organs of the body continue, in tuberculosis, to receive from such blood the matters which are organized to form their constituents, it is difficult to reconcile with this circumstance Rokitansky's statement, that in some cases "every extant minimum of fibrin is separated in a state of tuberculous dyscrasia, in the form of tubercle." As, moreover, this morbid quality is said to communicate itself, after the disappearance of fibrin from the blood (defibrinated condition of the blood), to the albumen, nothing can remain, adapted to nutrition and the maintenance of life of a tubercular patient, in the blood.

Rokitansky further distinguishes fibrinous and albuminous exudation, and even assumes still more numerous modifications of fibrinous exudations, croupy α, β, γ, and tuberculous exudation, which also is said to be formed of fibrin. But if we reflect how difficult it is to distinguish albumen and fibrin—especially after coagulation or solidification—from one another; how the capability of fibrin to be coagulated is modified by a number of various causes, which greater or lesser tentency to, or capacity for coagulation, plays so large a part in Rokitansky's theory of crases; and, indeed, recollect that chemistry does

not yet furnish any means of distinguishing with certainty coagulated fibrin from coagulated albumen; it cannot be maintained, that difference in solidity and colour of different tubercles can afford any ground for hence inferring original morbid changes of fibrin or albumen.

If, in reference to this point, we bear in mind the great variability of the blood during life, this fluid being altered every moment by the taking up of several constituents from the food, by the constant metamorphosis of these substances, through the influence of respiration, and incessant secretion and excretion; while even in the different vessels, in consequence of the metamorphosis of tissue in the nutrition and separation of various parts, it must possess a tolerably dissimilar composition, such a persistent morbid constitution of the fibrin or albumen, or indeed of both, with continuance of life, and of the normal functions of the brain, senses, muscles, and so many other organs as still perform their functions without disturbance, is nearly inconceivable.

Not only the origin of these tubercles, but also, as I have already observed, their varieties, are explained by the supposed difference of of blood-crasis. Thus Rokitansky assumes a simple fibrin-crasis, from which grey tubercles are formed, distinguished chiefly by this, that they are capable of passing into a state of condensation, hardening, and even cornification (not a happily chosen expression), and sometimes, into one of ossification, or into a calcareous condition, but by no means into softening. Again, we have a croupy crasis, said to give rise to the existence of yellow tubercles, differing from the preceding by their tendency to softening and suppuration, which different terminations are by no means to be regarded as the consequence of a varying degree of inflammation—which may, however, co-exist with them—but as the results of the primitive morbid crasis which the fibrin has assumed in the blood. That this explanation is, however, not sufficient to account for the form of the tubercles, Rokitansky himself has felt; and he expressly says—"Still these crases just mentioned are by no means adequate to afford a satisfactory explanation of the nature of the tuberculosis;" he is therefore obliged, he says, certainly to graft on these crases a peculiar tubercular modification.

I must confess, with all the respect which I feel for the indisputable merits of Rokitansky, that this mode of explanation always brings vividly to my mind Moliere's saying about the *virtus dormitiva* in opium. In it sufficient importance is not, in my opinion, attached to the nature of the tissue on which the different tubercles almost always occur. Thus, according to Rokitansky, the greyish dried tubercle, the result of a simple fibrin-crasis, occurs chiefly on the serous membranes, the pleura, &c.; the croupy fibrous tubercle, which has a yellowish appearance, and subsequently becomes softened, arises almost invariably in the pulmonary cells. They owe their origin, according to him, to a different crasis; while, however, the different natures of a serous and of a mucous membrane must produce an important

difference in the composition of the matters secreted by these membranes. When, too, the grey tubercle occurs in the lungs themselves, this difference is, I am convinced, explicable chiefly by its situation in the lungs, and the different tissue, as I shall hereafter show, in which it is primarily formed. If, on the contrary, we ascribe the grey tubercles to a simple fibrinous crasis, with a strong tendency to coagulation, the yellow to a croupy crasis, both crases should always coexist in the lungs, as tubercles of the first kind are constantly deposited simultaneously in the partition walls between the lobules of the lung, and the yellow in the cavities of the pulmonary vesicles themselves; so that fibrin capable of organization is deposited only in the partition walls, while that which is not adapted for organization is deposited in the cavities of the pulmonary vesicles.

The peculiar tubercular form, moreover, cannot be explained by the assumption of a crasis, further unknown to us, but is rather the consequence of the structure of the part in which the tubercles arise. If a slight local effusion takes place, in consequence of inflammation, from one or more capillary bloodvessels, the effused matter extends around the central point, may locally accumulate, and so, as papulæ or pustules, assumes more or less of the tubercular form—that is, be limited within a small extent; but if the tissue is—as, for example, in the lungs—divided into vesicles and lobules, which latter are mutually connected only by connective tissue and some bloodvessels, the effused matter is restricted within the bounds of the pulmonary vesicles, and consequently must, so long as it has not spread itself as a general effusion occupying many pulmonary vesicles and lobules, necessarily assume the form of tubercles (tubercula). If, however, the tissue is more connected, if it is not separated into minute subdivisions—as, for example, in the liver or the brain—we much more rarely find small tubercles; but when such morbid productions occur, they are usually much larger, or extended more uniformly into large nodules (knobbles);—a circumstance which cannot well be explained from the nature of a crasis.

Moreover, the situations where tubercles most frequently occur by no means consist with the idea, for example, of a fibrinous tubercular crasis. Thus tubercles are met with, according to the testimony of Rokitansky himself, most frequently in the lungs, the intestinal canal, the lymphatic glands, &c., but most rarely of all in the muscles; as is also sufficiently confirmed by experience. It is, however, more than probable that the muscles are nourished principally by the fibrin of the blood. This fibrin appears to be a somewhat higher degree of oxidation of albumen, and accordingly the quantity of fibrin in the blood agrees with the capacity of the respiratory organs. The more capacious the latter are, for example, in birds, the more plastic is the blood, the more highly developed are the muscles.

The same may be observed in the carnivorous animals, which are distinguished as well by their capacious breathing apparatus as by the powerful development of their muscles. It is also well known that a

broad shouldered man, with a large chest, possesses a comparatively strong muscular apparatus, while in both these respects the man is remarkably distinguished from the woman.

It is, therefore, strange, that while the muscles are nourished chiefly by the fibrin present in the blood, tubercles, arising from a primitive morbid fibrinous crasis, should so very seldom be met with in these organs, exactly where we should expect such a morbid crasis first to manifest itself.

In this theory of crasis, the idea of local inflammation, as a cause of tubercle, is further removed; and nevertheless Rokitansky himself acknowledges that the products of a simple inflammation, without crasis—for example, after local inflammations—agree as simple exudations, and as croupy exudation, which is purulent, with the products of a dyscratic exudation, and therefore with the tubercles themselves. Thus even he admits that tubercle is often the product of inflammation.

I therefore cannot see why, in order to ascertain the nature of tubercle, we should be obliged to take refuge in the hypothetic existence of an original crasis, which is not corroborated by any examination of the blood itself, while, as I hope to show, a more accurate investigation of the morphological constituents of the tubercles themselves affords a sufficient explanation of their peculiar composition, and of the reasons why they are not capable of further development.

The question remains, therefore, whether the frequent occurrence of so general a diffusion of tubercles throughout the body should not lead us to assume the existence of some peculiar primitive crasis.

I willingly admit that, for example, in a scrofulous constitution, where tubercles are developed in so many situations, the blood cannot be healthy: but in this case there also exists a disease of the lymphatic system, which exercises such an important influence on the preparation of the blood and the elaboration of its principal constituents. According to the doctrine of crases, however, this affection of the lymphatic system, whereby so many tubercles are developed, should be rather effect than cause. Rokitansky, indeed, supposes the existence of a primitive crasis of the blood, of which the local affections are the result, while tuberculosis is, in his opinion, one and the same disease with scrofulosis. The affections of the glands are, therefore, according to Rokitansky, results of the crasis, and not *vice versâ*.

Moreover, that the general diffusion of tubercles is not satisfactorily explained by a crases theory, has already been shown, as it does not hence appear why in a so-called fibrinous crasis the tubercles should spare the muscles, which ought to be the first organs to participate in the morbid condition of the fibrin of the blood. Finally, the doctrine of crases does not explain why, for example, in pulmonary tubercles the disease commences with the deposition of only a few tubercles, which spread very slowly. If the cause were to be found in a general alteration of the admixture of the blood, these should from the first

be formed equally throughout the whole lungs, since the same blood flows through all parts of these organs.

Rokitansky seems to assume increased oxidation as the cause of the tuberculous crasis, at least he says that arterial development of fibrin specially constitutes its principal character, and that continued oxidation leads to the excessive formation of fibrin. Though I readily agree to the last proposition, still the formation of tubercle is scarcely to be connected with these ideas of higher oxidation. And consistent with this, says Rokitansky, is the fact, that in a so-called phthisical constitution the lungs are not smaller, as has, according to him, incorrectly been supposed; but in this case the lungs are in fact more voluminous, as the apparent narrowness of the thorax in its antero-posterior diameter is amply compensated by its greater length. How the well-known results with the spirometer, which prove the very opposite, can be reconciled herewith, I cannot see; the capacity for respiration in those predisposed to phthisis, in a so-called phthisical habit, seems to be much less, so that even from this diminished capacity of the lungs, indicated by the spirometa, a strong predisposition to phthisis may usually be inferred, which capacity subsequently undergoes a steady decrease with the commencement and progress of phthisis. In like manner it is generally acknowledged that a capacious broad chest, with great capacity of the lungs, is the best safeguard against phthisis and tuberculosis. Lehmann explains the increase of fibrin in the blood in pneumonia and pleuritis, on exactly opposite principles, by diminished access of oxygen, the fibrin in these diseases being want of oxygen not sufficiently metamorphosed and burned, or rather not sufficiently reduced to products of lower composition. As, however, this increase of fibrin is not the constant result of deficient access of oxygen, as in asthma, emphysema, and cyanosis, we must conclude that the irritated condition of the lungs, both in these affections and in consumption, has a very great influence on the composition of the blood, though we cannot fully explain its mode of action.

In like manner, Rokitansky endeavours, on the other hand, to prove the existence of a crasis or peculiar disposition of the blood, by diseases or changes—such especially as those in which the blood is said to be more venous—which should make it unfit for the formation of tubercle. Although I willingly admit that for the occurrence of inflammation and effusion of fibrin a certain composition of the blood is required, and that these plastic effusions or inflammations may be in a great degree promoted or impeded by the composition of the blood, yet I can by no means agree to all the examples adduced by Rokitansky as grounds for this opinion. Thus he says, that in advanced pregnancy, tuberculosis, already existing, is arrested in its progress, and the commencement of tuberculosis is prevented, in consequence of the occurrence of greater venosity of the blood, the result of the diminution of the thoracic cavity. It has, however, been

shown, by the experiments of Andral and Gavarret, that while, in women, the quantity of exhaled carbonic acid, from the time of the establishment of the menses, in the fourteenth or fifteenth year of life, to the termination of this period, is constantly the same, and is much less than in man; during pregnancy, as well as on the cessation of menstruation, the quantity of exhaled carbonic acid is remarkably increased—a circumstance which can certainly not take place without a correspondingly increased assumption of oxygen; whence precisely the opposite result should follow—namely, that during pregnancy the tendency to tuberculosis ought to be increased, because respiration is then more vigorous. I believe that the impediment to the formation and spread of pulmonary tubercles in pregnant women is rather to be accounted for by the transference of increased activity and excitability from the lungs to the uterus, just as, on the other hand, the non-appearance of the menses, and the consequent diminished activity of the uterus, in consumptive girls, is a very unfavourable sign.

It is not, however, my object to follow Rokitansky's theory of blood crases through all its details; this would lead me too far. I will, I repeat, readily admit that the composition of the blood has a great influence on the origin of various diseases; that the blood, in phthisis, typhus, and scrofula, may deviate more or less from the healthy condition; but I doubt that these abnormities of the blood are always primary, and especially that the peculiarities of pulmonary tubercles can be explained by such a degeneration of the blood as should render its chief constituents incapable of further development. If the lung is once affected to a certain degree, if the lymphatic system has undergone more or less morbid degeneration, the preparation of healthy blood can no longer take place, and opportunity is given for the increase of pulmonary tubercles, or for the occurrence of chronic inflammation; but we cannot by any means hence infer the existence of primary crases, which should again be as easily distingushed, as we have various kinds of tubercles, the difference of which is more satisfactorily explained by the nature of the tissues and by the situation where they occur, than by a supposed crasis.

If, in the first place, we consider the difference which exists between pulmonary tubercles, we shall find that it by no means confirms the idea of an original crasis. Rokitansky himself divides pulmonary tubercles into interstitial and infiltrated tubercles. The first are described as forming in the interstitial tissue, between the most minute lobules and pulmonary cells, and between the wall of the pulmonary cells themselves, and as in this manner compressing the latter. The infiltrated are said to be deposited in the very cavity of the pulmonary cells.

On this I would first of all observe, that the so-called interstitial tubercle never occurs between the walls of the pulmonary vesicles, but only between the lobules. The walls of the pulmonary vesicles, even when these are more or less filled with tubercular mass, always

present the appearance of very thin membranes, on whose surface tubercular cells and altered epithelial cells are situated; but never is this matter deposited between the walls of the proper pulmonary vesicles. These interstitial tubercles occur only between the lobules, almost always in company with the other kind, the so-called infiltrated tubercles. Scarcely ever do we see tubercular mass between the lobules alone, compressing the neighbouring pulmonary vesicles; the adjoining air vesicles are always at the same time filled with tubercular mass (infiltrated). The same process, the same effusion, produces between the lobules interstitial, and in the cavity of the vessels, so-called, infiltrated tubercles; where these interstitial tubercles appear alone, it is, as we shall see, in consequence of a primary disease of the lymphatics.

In order to perceive this with certainty, a fine injection of the pulmonary vessels is very useful, as these between the lobules form an entirely different and much coarser vascular net-work, consisting of more capacious meshes, and differing so very much from the greatly finer and denser web on the walls of the air-vesicles, that they can be discriminated at first sight. The interstitial tubercles, however, are grey, according to Rokitansky, the infiltrated yellow. This difference is said to arise from the interstitial being the result of a simple fibrin-crasis, the yellow of a croupy crasis. But how is it possible that these crases should always occur simultaneously, and that the first crasis-matter should invariably have a special predilection for depositing itself between the lobules, and the second for placing itself in the pulmonary vesicles? If, however, we examine the structure of the lungs more accurately—for example, in a portion of the lung in which the capillary vessels are filled merely with a yellow matter, we find everywhere between the lobules, not only black pigment, but also that the branches of the pulmonary artery, passing towards and between the pulmonary vesicles, are more or less covered with black pigment. This black pigment, which may morbidly increase, gives to the tubercle a grey colour, which, therefore, is not derived from an original and distinct fibrin-crasis, but simply from the admixture of this colouring matter. This pigment seems to be adherent specially to the lymphatics, in consequence of which the latter, in an adult lung, as well as the bronchial glands, appear to be black.

The yellow tubercle passes, according to Rokitansky, at one time into a state of softening, at another into calcification. This calcification arises, in my opinion, from a peculiar affection of the lymphatics between the lobules, consequently in the grey tubercle, chronic inflammation of which is usually followed by calcification. Thus we meet this calcification also constantly in the bronchial glands, if the process occurs in the lungs themselves. Thus, too, mesenteric glands filled with chalk often occur in the mesentery, of which I possess, in my collection, specimens with lymphatics injected with quicksilver.

Hence we see that the termination in calcification is not to be

ascribed to a peculiar property of the blastema, but to the peculiar tendency of lymphatics to undergo this process.

But the property of tubercles, also, of not undergoing further development—and this is a principal point, which we must examine somewhat more closely—is not the result of a primary morbid affection of the albumen or the fibrin of the blood, but of the particular situation where, and of the manner in which, the tubercle is developed.

If effusion takes place in a lobule, it extends at the same time to the interlobular space; that is, the effused matter does not confine itself to the cavity of the pulmonary vesicle, but the interspaces between the lobules are simultaneously more or less filled with the exudation. The exudation is here, however, in contact with connective tissue and vessels, and development, it is true, to a certain extent, takes place; that is, we see the cells in this situation become lengthened, and assume more or less of a filamentary form, which never occurs with the tubercular matter in the pulmonary vesicles, the simple reasons of which I shall presently more accurately examine. Now, if the cause of the want of development were to be found in an original blood-crasis, it would follow, that a preceding tuberculous crasis should be required for the formation of tubercular matter in the pulmonary vesicles, while the effusion simultaneously occurring between the lobules should yield healthy fibrin, which is absurd.

In order, however, plainly to indicate the reason why tubercular matter deposited in the cavity of the pulmonary vesicles never attains a higher degree of development, it is necessary previously to investigate the properties which the pulmonary vesicles, and the epithelium lining them internally, have in common with all other secreting organs.

All secreting organs, by which matters are separated from the blood, are covered internally with a peculiar kind of epithelial cells, which cells are especially to be found in the ultimate terminations or vesicles, and sometimes also on the inner walls of the excretory ducts. These cells possess the peculiar property of multiplying themselves when they come in contact with serum effused through the vessels; of swelling up, and usually, finally, taking up a constantly increasing amount of fat, while the cell walls become thinner, of bursting or disappearing, and pouring out their contents as a secretion. They are thus of the greatest importance in determining the nature of the secretions. These cells are situated everywhere on the membrane investing the secreting organs internally, and constitute, as has been shown, particularly by Carpenter, the most efficient part of the organs. They everywhere fill, nearly entirely, the follicles and mucous crypts, the ducts and vesicles of the salivary glands, the tubuli uriniferi, the lacteal ducts, and form the principal constituents of the liver, in which organ the entire series of changes which they undergo in their transmutation from smaller cells to large hepatic cells, finally pouring out their contents as bile, has been admirably explained by Carpenter.

The same process had previously been described by Frerichs, with reference to the synovial membranes. These are invested with proper epithelial cells, which are constantly rubbed off by friction during the motions of the joint, swell up, and finally (according to Schrant, through mucine metamorphosis of their contents), are dissolved in the articular fluid, whereby the mucus peculiar to this fluid is prepared. If a joint is not kept in motion, this ebrasion of the epithelial cells is diminished; but the articular fluid now also becomes more watery, and contains less mucus, as Frerichs has shown by comparative analyses. In consequence of this the joints of patients who have long been bedridden become at length stiff and rigid.

In the same manner, too, is the milk formed by the epithelial cells of the mammary glands, which first take up fat, and enlarge; in the commencement of secretion exhibit themselves as large cells filled with fat globules; and, subsequently, when suckling is completely established, are dissolved in the glandular vesicles, the contents of which are now discharged as milk or suck, as has been satisfactorily demonstrated by Lammerts van Bueren, and by Donders.—*Dublin Hospital Gazette, Feb.* 15, *and March* 1, 1858, *pp.* 60, 76.

26.—ON CHRONIC PHTHISIS.

By Dr. Edward Smith, L.L.B., Assistant Physician to the Hospital for Consumption, &c., Brompton.

Tubercle is not the first step in the disease. I venture to affirm that tubercular deposit is not the first step in chronic phthisis, on the following grounds:

I. That whatever tubercle may be, it must be due to anterior causes, and there must have been a period prior to the deposition of tubercle, in which those causes acted.

II. It is universally admitted that a predisposition to phthisis exists and is demonstrable; and so long and widely has this been known, that non-professional people are enabled to indicate its existence. Then as in those persons having this predisposition there is a greater probability that they will have the disease than that they will not, or than that others will have it, there must be a true relation between that state and the disease. Now, assuming that tubercle is the starting point of the disease, as they have not then the disease they have not tubercle; but as they are the persons in whom the disease—that is tubercle—is most likely to occur, they are in the stage which precedes tubercle, that is, in the stage in which the causes are acting which must precede and which produce tubercle. I know well that the difficulty lies in proving a connexion between these two states, which is either a necessary antecedence to, or a cause of, the latter; and it is to overcome this that I especially direct attention; but it will suffice if I show that that early condition is a necessary antecedent

to tubercle, without being called upon to prove that it is a cause of tubercle, or that tubercle is its necessary consequent.

Evidence of first stage. I consider that this connexion is proved from its own evidences absolutely, and from these contrasted with the evidence which tubercle in its very early condition affords. Its own evidences are shorter breathing, less breath motion, feeble and shorter inspiratory sounds and particularly the vesicular sounds, and this may be more or less general over the whole of both lungs. Expiration quick, forcible, and perfect. Deep inspiration may be effected, but it is not effected by the patient unless at least his attention be directed to the defect, and more commonly not until he has given attention by repeated efforts. This may be readily proved by the inspiration. The quantity of tidal air is often diminished in ordinary breathing. The general indications of body will be those of atonicity, and possibly the rate of pulsation and respiration will be increased, and the complexion and condition of system evince a state of mal-nutrition. There will probably be flattening of the chest, depending upon original conformation or upon the progress of the disease. The same remark will also apply to dulness on percussion. Cough may or may not exist, as also some hæmoptysis. The essence of the whole is less respiratory action ; and as this varies in degree, extent, and duration, so will the other signs vary.

The evidences of the disease when tubercle is deposited in its very early period, are the same, but with the addition of those of the existence of obstruction at certain defined places. Hitherto there was lessened action but no localised obstruction, but the deposit of a matter more or less solid offers obstruction to the entrance and exit of the air in the precise spot in which it is placed, and then by extension as the quantity increases. This is evinced by wavy or jerking respiration and prolonged expiration. In addition, the new substance will displace a quantity of air, and then, by its own heavier specific gravity, cause the resonance on percussion to be less clear.

Thus the essential difference in the two stages is, that in the first we meet with simply lessened action and its consequences, whilst in the second there is added obstruction and solidification ; and these signs are sufficiently diagnostic, except perhaps at that short period when the two meet, or the first passes into the second stage. The connexion between the two is proved both by the evidences of the first and the continuance of them into the second. We are accustomed to attribute the signs existing with tubercle to the tubercle alone ; but this is an error as has been already proved, and also by the further fact that the amount of lessened vital capacity (say 100 cubic inches in the very earliest moments of recognised tubercle) is infinitely too great to be accounted for by the displacement of it by the tubercle, but is readily understood when the conditions attending the earlier stage are admitted.

With regard to the duration of the first stage, we admit universally,

under the name of a predisposition, that it is commonly long, and as we cannot deny the influence of defective organisation over its production in many instances, we must admit that in these cases the predisposition may have existed at birth. As, however, the causes of phthisis are not one only, but many, and those varying in influence as life advances; and as we find many cases of persons who in childhood were robust and healthy, but who subsequently fell into phthisis, we are equally entitled to affirm that its duration may be small. This conclusion can the less be resisted when we call to mind the occasional instances in which the diseases could be clearly traced to local causes. Whilst therefore the duration of the first stage is commonly long, it may be short.

Respiratory Sounds. I believe it to be incontrovertible that in the earliest stage of phthisis the respiratory sounds, universally or locally, are more feeble than in health. This is coincident with lessened inspiratory action, and both exist for an uncertain period before flattening of the chest occurs. The respiratory sounds in health are limited, so far as we know, to the bronchi and to the air vesicles; for whether any portion of them is due to movement of blood in the vessels has not been determined. The bronchial sounds in health are alone heard over the large bronchi, but in disease they are also very audible in the smallest bronchi, whilst the vesicular sounds are heard wherever there are air vesicles in action; and in health they prevent the perception of the sounds in the smallest bronchi. The vesicular sounds, moreover, vary in intensity with the action of the vesicles, and are feeble when the vesicular action is feeble; and when they are feeble to a certain degree, they permit the bronchial sounds to be heard. Hence, lessened vesicular murmur indicates lessened vesicular action, which is evidence of lessened movement of the lungs, and of lessoned chemical and physical changes in respiration. This first indication may exist for some time, and must have proceeded to a certain extent before the next evidence of disease, viz., harsh respiration or bronchial breathing, is superadded; and with both, the only attendants may be lessened chest movements and consequent shorter inspiratory *trajet.* After a period, to these three will be added flattening of the chest; and all may and do exist in every case of chronic phthisis before tubercle is deposited, and constitutes what I have denominated the first stage of the disease.

The order of these signs will be—

I. Lessened chest movements; shorter *trajet* of air; short and feeble inspiratory sounds.

II. Flattening.

III. Bronchial breathing.

The only sign of this earliest stage which is open to dispute, is dulness on percussion, and that arises from our inability to detect the slightest change from health, since the sign is always relative, and many degrees of it are all expressed by the one common term, with the

addition of the qualification, "little" and "great." Hence there must be a period in every case when medical men will differ as to its existence even, and much more as to its importance. It is, however, evident, that as the clear sound on percussion in health is due to a certain relative proportion between the æriform and the solid contents of the chest, it will vary as this proportion varies, and will increase in emphysema, or even in a well-filled chest, and decrease when the action of the air vesicles is lessened. Hence, with the occurrence of the latter, there must coexist the former, but both must have progressed to a certain extent before they can be detected, and still more before their existence would be admitted by those who regard that sound only as dulness which results from the percussion of a solid body. Hence, in the first stage, dulness must be theoretically present, but practically may not be perceptible at the period of the disease then under examination.

With the occurrence of tubercle, there will be superadded signs of obstructed breathing, viz., wavy or jerking inspiration and prolonged expiration, increasing locally as the accumulation increases, and with these all the above above-mentioned signs increase in intensity in the place where the tubercle is found. The obstruction required in order to the production of these signs must be partial and lateral as opposed to complete and terminal; that is, it must occur in the course of the air-way, and leave a portion of the conduit open, so that the air may be forced beyond it. When all the air cells of an intercellular passage are filled with tubercle, they cannot *directly* induce these sounds, but they do so *indirectly* by pressing upon adjoining air cells and minute bronchi. Absence of vesicular murmur, with its consequences, is the only direct sign of such a condition. After an uncertain period, there will be the further addition of moist sounds, indicative of air passing through a fluid, which in this instance is softening tubercle. There is no reason theoretically why this should not at the first occur, whilst the tissue of the lung is unbroken, for the softening of tubercle is not a corroding process, like that of ulceration, but simply the imbibition by endosmosis of fluid by the tubercular mass by or with which the mass softens, and the process of tubercular transformation or degeneration is hastened. As the mass is extra-vascular, it is manifest that it must obtain the fluid with which it softens from the walls of its cell, and not from the centre of the mass, as has been affirmed; and this will be the case how many soever may be the cells implicated in the softening mass. This process may be non-inflammatory, but exudation of pus corpuscles always occurs at some period, and that is presumed to be the result of inflammatory action. The reason for the destruction of tissue is not simply the softening of the tubercle, nor any inflammatory or ulcerative action; but the basement membrane and capillaries having ceased to act for a time, lose their vitality and are ready to decay, and only wait for the partial emptying of their contents in order to break down. Moist fine crepitant rales when

localised in a tubercular mass are practically held to indicate the destruction of tissue, and although it may not be so at the earliest moment, it soon becomes so in every case. The softening of tubercle, and the destruction of the cell walls having begun, it only remains that those processes shall go on until all the tubercle has been eliminated and a cavity results; and thus the whole are but steps of one process, and, in truth, are one stage of the disease. With softening, the bronchi are reopened, and air is admitted, which produces the moist sounds, and ultimately all the signs which are indicative of a cavity; but with the restoration of respiration there is no increase of respiratory changes, since the air cells in that part are destroyed or perhaps removed. With the formation of a cavity, the lung falls in as do also the parietes of the chest immediately covering it, and the dull sound on percussion will in part have disappeared.

Thus, the essential signs of the three stages may be thus epitomised: first, lessened action; second, obstructed action; third, destroyed lung.

There is no reaction or compensating effort set up by nature in this disease whereby one part of the lung is made to do a double share of duty when another part is incapable of performing its function. Such a power is much less frequently exercised in chronic than in acute diseases universally; but in none is it so remarkable and constant as in phthisis; so that the system quietly accommodates itself to the induced condition. Increase in the rate of function does not come under this denomination, since that increase is not partial, but general, and to both sound and diseased parts alike.

Conditions of the Throat. There are various conditions of the throat met with in phthisis, each of which calls for separate investigation and treatment; and taken generally they may be arranged under three heads.

I. A state of pallor without injection of the vessels and without desquamation or inflammatory action. This is a condition very frequent in the earlier stages of the disease, and is made known to the patient by a sense of dryness which induces cough. In this condition the sensation is generally referred to the fauces, pharynx, and upper part of the larynx alone; and it is the most annoying in the early morning and on changes of temperature. The surface does not always appear to be dry, but is smooth and shining, and the parts are attenuated. The anterior arch is atrophied, whilst the posterior stands out in sharp relief, and the intervening space is large and excavated from the absorption of fat from the areolar tissue, and oftentimes from a diminution in the size of the tonsillar glands. The latter organs seem to be of looser texture, and to have their superficial follicles projecting. This condition is one of lessened tonicity with increased sensibility, and with a diminution in the secreting function of the epithelium and mucous follicles. It may or may not be associated with derangement in the excreting organs, and is always ame-

nable, temporarily, to local treatment as well as to the influence of general sedatives. I find in this stage that the application of a mixture of equal parts of chloroform and olive oil, by means of a large brush, is most useful, provided it be repeated every second day, and be thoroughly applied as far up the pharynx as behind the velum, and as far down the pharynx as possible; for, as a cause of cough, its site is limited probably to that part of the pharynx. A strong solution of suet in milk (℥ j to ℥ vj), and applied often by table-spoonsful, quietly and slowly swallowed, is most useful. In some instances the greatest relief is afforded by a strong solution of nitrate of silver. Morphia in minute doses is very useful in this stage; but it is in this stage especially that I have met with coughs which have resisted the influence of the general sedative and succumb to the local treatment. There cannot be a doubt, also, of the necessity for a general tonic and chalybeate plan of treatment in this condition of the parts; and I would earnestly call attention to this condition because it has not generally been considered as a disease.

II. A condition in which, while there is pallor of various parts of the fauces, there is injection of defined vessels in some parts, with more or less suffusion in others, and at each the parts appear to be loose and relaxed. The distended vessels are most evident upon the uvula, and the diffused redness, on and between the arches, and upon the tonsils. Besides these, however, there is one condition which is very marked in many instances, viz., enlarged mucous follicles, chiefly on the pharynx, but also upon the uvula, and sometimes on the arches, appearing as small more or less coloured vegetations; and it is not unusual to find ulceration or enucleation of some of the follicles of the tonsil, and chiefly at its upper part. The uvula is commonly enlarged and elongated. In this condition there is commonly less sensation of dryness and irritability in the fauces than is found in that before described; but there is a troublesome sense of constriction or irritability at the lowest part of the trachea in the neck, and it is more commonly there that the patient at once directs attention. He is, however, annoyed by a sensation of phlegm adhering to the parts about the fauces, and is induced to continue a cough of some force with a view of detaching it. This state is commonly associated with disordered action in the alimentary canal or the liver, and is to be treated through those parts; but it is very greatly benefited by the application every third day of a strong solution of nitrate of silver, care being taken to brush every part well where the vessels are enlarged, or where there are vegetations, and to use an abundance of the solution so that much shall be left by the brush upon the mucous membrane.

III. The third form is one of desquamation, of fibrinous deposition. or of ulceration, and is generally met with only in the advanced cases. The desquamation is in patches, with or without a fibrous exudation, and chiefly in the pharynx, and in the arches of the fauces. The

fibrinous exudation is of a cacoplastic kind, and lies as a layer upon the denuded mucous surface, and may be partially removed by the brush when used to the parts. In this condition there is more general redness of the parts of a dull hue, and is often accompanied by hoarseness which is progressively increased in intensity. On inquiry, the patient at once complains of the throat, and frequently states that it is more disagreeable to him after—not during—a meal. The tonsils are often enlarged, and participate in the general redness, and the fauces are more or less laterally contracted. There is also frequently a complaint of soreness and tenderness on pressure about the larynx, both on the sides and below the Pomum Adami. In this condition I have often the free application of the strong solution of nitrate of silver, and especially to the lower part of the pharynx, within our reach, to be followed by alarming choking; and upon the whole there is exalted sensibility, not so much of a simple nervous kind, as was mentioned under the first head, as that resulting from inflammatory action and destruction of tissue. This will of course vary with the chronicity and intensity of the conditions existing As a local application, I have found great benefit from equal parts of oil and liq. potassæ, well laid on with a large brush; a mixture of cod-liver oil with an alkali, taken internally, but swallowed very slowly; or an alkali, as soda, with the tonic then in use, also drank slowly; and in each case I believe there to be a local topical influence excited. The secretions of the mouth and throat are very acid, and hence call for the topical use of an alkali; and with the sensibility from inflammatory action, oil of a certain viscidity is very valuable. The external application of blisters is often called for, as also the administration of gentle purgatives. It is particularly necessary to avoid speaking, and the swallowing of mere secretions; and of all articles of food, suet and milk are the most useful. The latter is also a valuable medicinal agent if it be used in small quantities, and whenever the throat is unusually dry and irritable. I do not think that in this class of cases the application of a strong solution of nitrate of silver is so useful as in the former category.

In each of the classes of cases now described, whenever it is intended to make a topical application to the mucous membrane, the mouth should be well opened, the tongue held down and drawn a little forward by a broad spatula, the patient directed to breathe at his ordinary rate, and to breathe through the mouth, or the whole of the surface of the pharynx which it is essential to medicate will not be exposed. A camel's hair-brush, quite as large as the end of the little finger, should be used; and, after having been well dipped into the solution, must be carried dripping into the fauces, and be well rubbed upon the pharynx as high up behind the velum, and as low down towards the epiglottis as practicable, as well as in other places, and the good to be effected will depend upon the use of a sufficient quantity of the remedy, and upon its extensive and uniform application.

I think that too much importance cannot be attached to this branch of the subject, for not only will the patient's comfort be increased (whether he have complained of his throat or not), but the necessity for the use of sedative medicine may be greatly lessened. I am also of opinion, that notwithstanding the attention which has been given to this subject by our American and continental brethren, as well as by ourselves, we are in want of additional local remedies; and especially of such as the patient may apply.—*Midland Quarterly Journal, Vol. 1, p.* 84.

27.—ON THE ARREST OF PULMONARY TUBERCULOSIS.

By Dr. Flint.

In this paper Dr. Flint furnishes the details of 24 examples of arrest of phthisis that have occurred in his own practice, and then makes some interesting observations upon the circumstances which seem to favour such arrest. The number might have been much increased had he not excluded such cases as were too recent, or the subsequent histories of which had not been sufficiently followed up, and those in which the disease was not arrested but simply slow in its progress. The evidence of arrest from the fact of well-marked symptoms progressively abating in intensity, the patient increasing in weight and strength. "Until within late years, instances of supposed recovery from phthisis were unreliable in consequence of the want of certainty in the means of determining the presence of the disease. This uncertainty has been removed by the discovery and improvement of the physical exploration of the chest. Physical signs in conjunction with symptoms render the diagnosis of pulmonary tuberculosis positive in the great majority of cases. I shall include in this collection only cases in which the diagnosis rests on the conjoined evidence of signs and symptoms. With some exceptions, the results of exploration of the chest, together with the previous history and existing condition of the patient, were noted prior to the arrest of the disease. In a few instances, however, the cases came under observation subsequently to the arrest, and the diagnosis was made retrospectively; that is, the physical signs and previous history were deemed sufficient to render it positive that the patient had been affected with tuberculosis." In the narration of the author's cases a marked distinction is made between "arrest" and "recovery." Arrest it is obvious may take place without recovery, when the tuberculous affection ceases to be progressive, but the processes of restoration never being complete; recovery can only be said to have occurred when, in connection with restoration of the general health, the local symptoms have entirely disappeared. Of the 24 cases, in 13 arrest of the diseases was followed by complete recovery, while in 11 arrest was only demonstrated.

"In several of the cases the arrest of the disease was evidently

due to an *intrinsic tendency* to that result; in other words, the disease ceased to be progressive, in consequence of its self-limitation. This is fairly to be inferred in those instances in which no appreciable external influences, in the form either of medication, diet, or regimen, were brought to bear in the course of the disease. Eight of the cases may be embraced in this category." The fact of such intrinsic tendency Dr. Flint believes is not sufficiently appreciated, having been, indeed, only of late recognised; and adds, that while it is probable that the arrest of tuberculosis, supposed to be brought about by the measures resorted to, is really in more or less of the cases actually due to the self-limitation of the disease; so is it to be supposed that this intrinsic tendency has been sometimes thwarted by injurious therapeutical or other means—especially when it was the custom to resort to the antiphlogistic course of treatment. In the cases here detailed no resort was had to antiphlogistic debilitating measures, such as depletion, mercurials, emetics, low diet, confinement, &c.: and it may be fairly asked whether an abstinence from such measures did not contribute to the favourable result.

The occurrence of hæmoptysis occurred in no less than 18 of the 24 cases. In 10 of the 18 it occurred more than once, and in some several times. The proportion exceeds that in which hemorrhage may be expected to occur in phthisis, according to the researches of Louis (57 of 87 cases), proving that the symptom is not an unfavourable one as regards arrest; the fact according with the conclusion arrived at by Walshe, that the occurrence of hemorrhage does not hasten the progress of the disease, but appears to produce an opposite effect. It also agrees with the inference from observations in individual cases in which hemorrhage seems to take place in lieu of a fresh tuberculous exudation.

Comparing the 14 cases, in which measures of treatment were adopted, it is found that in nearly all a change was made in the habits of life, such change consisting in relinquishing partially or entirely, sedentary pursuits, and giving proportionately more time to *exercise in the open air*. In five of the cases this change in habits constituted the sole treatment, while all the eight patients in whom the disease was arrested without any measures of management were persons of active habits of life. We are, therefore, warranted in regarding outdoor occupation as conducive to this result. "The exercise in the open air was not generally of the kind which often goes by that title, consisting in simple airings by gentle walks or drives; but it consisted in rough occupation, often involving considerable, and sometimes great exposure to vicissitudes of weather." *Change of climate* occurred only in two cases prior to evidence of arrest. "On this subject I have been led to conclusions to which others have also arrived, viz., that climate, in itself, exerts no special agency in determining an arrest, but that it may favour this result indirectly by affording better opportunity for exercise in the open air, and furnish-

ing objects of interest to the mind which will secure that object. . . . . It has seemed to me far less important to fix upon a situation supposed to be the most favourable in its climatic aspects to the tuberculous patient, than to select a residence where the inducements to active habits of exercise are greatest. To place a patient in a group of invalids, in a particular spot where he is expected to derive some specific remedial influence from the atmosphere is rarely useful. The *ennui* incident to such a position, for a man of active habits of mind and body, is intolerable, and the moral effect of his associations is injurious. Patients will do wisely in avoiding the favourite places of resort for those affected with the disease, and in choosing points where the incitements to and the resources for physical exertion abound. Generally the objects of a change of climate are better secured by frequent change of place than by remaining stationary. Travelling in foreign countries, even when, so far as the climate is concerned, the change is for the worse rather than the better, may be in a high degree useful, because the exercise which it invites is not endured as a task, but accepted as a means of mental gratification."

With respect to *diet*, the object was not to lower the powers of the system, but on the contrary to support and develope them by nutritious food. The patients were encouraged to live generously, indulging and cultivating an appetite for any and all the varied wholesome articles of food, with a full proportion of meat. In consequence of carbonaceous alimentary principles appearing to be useful in the management of phthisis, and the alleged fact of the comparative freedom from the disease enjoyed by persons working in sugar houses, Dr. Flint advises the free use of sugar. "It is a significant fact, apparent on referring to the cases I have reported, that appetite and digestion were, in general, not greatly impaired. It accords with the views just expressed to regard an unimpaired appetite and digestion as highly favourable for an arrest of the disease. Observation undoubtedly shows us instances in which the tuberculosis is progressive, notwithstanding the ingestion and apparent assimilation of nutritious food; but it probably can show few examples of arrest of the disease when, either from disinclination or injudicious management, the diet is insufficient for the full support of the body, or fails to be appropriated to that end. No part of the management of tuberculosis seems to me of greater importance than that relating to the diet; in fact, whatever efficiency belongs to active habits of exercise, it is reasonable to suppose, is in great measure exerted by means of the increased activity of the processes of assimilation thereby induced." Diffusible stimuli, as wine, beer, and spirits, entered more or less into the management of a considerable number of these cases. They were given in moderate quantities, subsidiary to alimentation, *i.e.*, contributing to render the digestive processes more active and complete. "I have of late advised their use much more freely than formerly, and I think I cannot be mistaken in attributing to them

much value. I have observed that patients affected with tuberculosis are often able to take spirits in large quantity without experiencing stimulant or intoxicating effects. The disease appears to be one of those in which these effects are with difficulty produced."

Beyond mere palliatives, little use was made of *medicinal agents* properly so called. No remedies were given with reference to their special influence on the tuberculous cachexy, unless cod-liver oil can be so regarded. Tonics were often ordered, with the intention of influencing the processes of digestion and assimilation; and in this point of view they must be regarded as important agents. Cod-liver oil does not hold a very conspicuous place in these cases. Several of them occurred before it came into vogue: and in other cases it was taken for too short a period, either from the repugnance or the disturbance of the digestive organs it gave rise to. In very few instances was it persisted in. "Had a larger number of these cases occurred within a more recent period, or were I to report the cases during the last few years in which the progress of the tuberculosis appeared to be greatly retarded, although not arrested, this remedy would be found to enter more generally and often largely into the treatment. That it is a valuable remedy I can scarcely entertain a doubt; but it is to be considered that, since it has become emphatically *the* remedy employed in this disease, improved pathological views and the lessons of experience have wrought a radical change in the management of the disease as regards other measures—a change consisting in the abandonment, to a great extent, of antiphlogistic and debilitating measures, and a recognition, more and more, of the importance of measures of an opposite character."

"A point pertaining to the *mental constitution* of persons affected with tuberculosis seems to me worthy of notice. As regards the successful management of the disease, much depends on the patient's energy and perseverance. Tuberculous patients, as is well known, usually entertain sanguine expectations of recovery; but in a large porportion of cases they expect recovery to take place without any extraordinary agency on their part to secure that result. The disease, while it engenders hopes which are so often fallacious, seems frequently to impair that determination of purpose without which the means requisite to effect an arrest will not be efficiently pursued. A passive expectancy of recovery, and a calm acquiescence in the prospect of a fatal termination, belong to the natural history of the disease. On referring to the cases which I have reported, I find that, in general, the persons manifested greater resolution than is usually associated with the tuberculous cachexy. This was due in some instances to innate strength of character, and in other instances to the force of circumstances."

"In conclusion, the general views which, with our present knowledge, are to govern the management of pulmonary tuberculosis may be summed up in a few words. The ends to be attained are, the re-

moval of the cachexy on which the progress of the disease depends, the consequent arrest of the disease, and the promotion of the processes of restoration. There is no special medication to be pursued for the attainment of these ends; they are to be attained by measures which, in general terms, develope and strengthen the power of the system. This mode of expression, it is true, in a scientific point of view, must be considered rather vague, but in a practical sense it has a meaning sufficiently definite. The measures are hygienic rather than medicinal; but much importance often belongs to the latter. The hygienic measures which are most important are laborious exercise in the open air conjoined with agreeable mental occupation, and as conducive thereto, frequently, change of business, the selection of a more eligible climate, and travelling are desirable, if not necessary; generous diet, and in many, if not most instances, the free use of alcoholic stimulants. The medicinal remedies, in addition to those which are simply palliative, are chiefly those of the tonic class, and in this category may be included the analeptic which has of late years had so much celebrity."—*American Journal of Med. Science.—Med. Times and Gazette, Feb.* 13, 1858, *p.* 174.

28.—ON THE "SPECIFIC" ACTION OF CERTAIN SALTS OF PHOSPHORUS IN PHTHISIS.

By Dr. Richard Payne Cotton, Physician to the Hospital for Consumption, &c., Brompton.

[A fair trial has been given to Dr. Churchill's new plan of treatment of phthisis; the results are as follow.]

It may be as well to state briefly that Dr. Churchill is of opinion that the direct cause of tuberculosis is the decrease in the system of the normal proportion of phosphorus in an oxygenizable state, and that the natural remedy should be sought in some compound of phosphorus at the lowest possible degree of oxydation. The hypophosphites appeared to him to offer the nearest approach to such a quality; and of these he selected the hypophosphites of soda and of lime, as being the most soluble and "assimilable." "They produce," he observes, "a manifest increase of nervous power, sometimes even from the first day of their administration, together with an unusual feeling of comfort and strength. At the same time the nervous symptoms, if there have been any, disappear, as well as the functional derangement, such as weight, &c., of the intestinal mucous surface. The appetite increases, often in an extraordinary manner. The evacuations become regular, and more abundant; the perspirations, if they have existed, cease; sleep becomes calm and profound." He administered it to thirty-five consumptive patients, all of whom were either in the second or third stage of phthisis. Of these, "nine were completely

cured, eleven experienced great melioration, fourteen died," and one was still under treatment.

My experience of this remedy is based upon carefully made observations upon twenty of my own in-patients at the Hospital for Consumption. Copious notes were taken by Dr. Walker and Mr. Ford, the resident clinical assistants; and are open to the inspection of those who may be desirous of obtaining more information than I am able to offer in the present communication. Dr. Churchill's rules for administering it were carefully attended to; five grains dissolved in water, with the addition of a small quantity of syrup, being given three times a-day. The cases consisted of nine males and eleven females, all of whom were adults. Three were in the first stage of consumption, five in the second, and twelve in the third. All were affected with the disease in its simple form, there being no other than the ordinary complications. The remedy was administered for a fortnight, notes being regularly taken; if at the expiration of this period no improvement was observable, it was discontinued; but if the patients expressed themselves relieved, other medicines were prescribed with the view of testing whether such relief was fairly attributable to "specific" agency, or to other circumstances—such as improved diet, rest, &c., which should always be taken into account in estimating the effect of medicinal agents upon hospital patients.

Of the three patients in the first stage of the disease, two were not perceptibly influenced by the hypophosphites, but afterwards improved considerably under tonic treatment and cod-liver oil; the other considered himself much stronger, but before admission to the hospital he had been almost starved, so that good diet, &c. may reasonably claim a fair share of the credit; and he left before other medicines could be tried.

Of the five patients in the second stage of the disesse, two were not in any way influenced by the hypophosphites, but subsequently expressed themselves as feeling "much better" under tonic treatment with cod-liver oil; two slightly improved, but one of these afterwards advanced at a much more rapid rate under steel and oil, and the other seemed to get on quite as well under steel and quinine; the remaining one became much worse from a gradual advance of the malady.

Of the twelve patients in the last stage of the disease, one felt herself better under the hypophosphite than under any other remedy; one improved greatly, but not more than under the subsequent use of other tonics: three improved slightly, but afterwards progressed much more rapidly under steel and cod-liver oil; two were not at all benefitted, but found themselves "much better" under a change of treatment; in two cases no effect was observed, and in spite of all treatment, the disease ran on; one of the patients became worse, but subsequently gained strength under the oil and quinine; the remaining two died.

Thus, in only two instances could this remedy be said to act with

any marked benefit, and in one of these its good effect was very equivocal, the patient previous to admission having been in an almost starving condition, and leaving the hospital before the comparative trial could be made with other medicines. In all the rest it acted certainly in no way as a "specific;" in most, it seemed to be inert; and the few cases which slightly improved during its administration were evidently instances of the *post*, and not the *propter hoc*, since some advanced equally, and many of them more rapidly under the subsequent use of steel or quinine with cod-liver oil.

It is very possible that the compound of phosphorus proposed by Dr. Churchill may in some cases have a tonic and beneficial influence; but to any "specific" action upon tuberculosis it seems to have no claim.

In a foot-note to the tabular statement made by the abovenamed Clinical Assistants, I find the following remarks by Mr. Ford:—"As far as we can judge from these cases, it is obvious that the hypophosphites are of no therapeutic value whatever in the treatment of phthisis; indeed they seem to be simply inert, doing neither good nor harm, except indirectly in the latter sense by interfering with more positively beneficial modes of treatment." This opinion is fully endorsed by Dr. Walker.

The employment of phosphorus in the treatment of phthisis is by no means novel. For the last eight or nine years I have been in the habit of using a mixture consisting of the dilute phosphoric acid with phosphate of iron; and at my suggestion it has been inserted in our Hospital Pharmacopœia. In many cases much good has attended, and I think I may say been produced by, its administration; but I attribute to it no *specific* action. I believe it is a simple tonic, adapted to certain depressed states of system.

Phosphorus is a well-known and apparently necessary constituent of all healthy nerve structure; and in some conditions of low nervous vigour, its medicinal employment may be of very great service. We find that it enters largely into the composition of the most nutritive kinds of grain; and we may be quite sure that it is not placed there without a purpose.

If phosphorus, then, be no specific for phthisis, but a simple tonic acting usefully in certain lowered states of nervous energy, are we to seek further for specific remedies for this most intractable of all diseases? I believe the search will ever be futile. Until we know what *life* really is;—until some new aid can be brought to bear upon its demonstration; until we find out in what consists that diminished power of vitalising new products, as exhibited in the formation of tubercle and other imperfectly organised substances from the blood, we must be content with treating consumption, as at present, with tonics and cod-liver oil.—*Medical Times and Gazette, Feb.* 13, 1858, *p.* 163.

29.—ON INJECTIONS OF THE BRONCHI IN PULMONARY DISEASES.

By Dr. JOHN HUGHES BENNETT, Professor of Medicine in the University of Edinburgh.

In a publication which I received from Dr. Horace Green of New York, in 1856, there is a statistical table of 106 cases of pulmonary disease, which were treated by injections of the bronchi, with a solution of nitrate of silver. A flexible catheter was introduced through the larynx, into the right or left division of the trachea, and, by means of a glass syringe, the injection thrown into the lung. This bold proceeding was described as producing great benefit in cases of pulmonary tuberculosis, bronchitis, and asthma. Whilst tuberculosis is at first a constitutional disease, its localization in any part, reacts more or less on the general health—and the opinion I have long entertained, that any means which could enable the physician to act directly on the tissue of the lung itself or inflamed bronchi, would assist his efforts at cure, at once led me to take a favourable view of this new mode of treatment. Besides, why should not nitrate of silver act as beneficially on the mucous membrane of the trachea and bronchi, as on that of any other hollow viscus? The difficulty was obviously to get it there through the rima glottidis. I therefore wrote to Dr. Green, requesting him to send me the instruments he employed. In a letter which I received from him in reply, dated New York, Jan. 30, 1856, he says:—

"I would, with much pleasure, send you the instruments I employ, but they are simple, and may be obtained at any surgical instrument makers' shop. They consist of an ordinary flexible or gum catheter, and a small silver or a glass syringe. The catheter is Hutching's gum-elastic catheter (Nos. 11 or 12), which is 12½ inches in length; and, as the distance from the incisor teeth to the tracheal bifurcation is, ordinarily, in the adult about eight inches, if this instrument is introduced so as to leave only two inches of the catheter projecting from the mouth, its lower extremity must of course (if it enters the trachea) reach into one or the other of its divisions. I first prepare my patients by making applications with the sponge-probang, for a period of one or two weeks, to the opening of the glottis and the larynx, until the sensibility of the parts is greatly diminished. Then, having the tube slightly bent, I dip the instrument in cold water (which seems to stiffen it for the moment, and obviates the necessity of using a wire), and with the patient's head thrown well back, and the tongue depressed, I place the bent extremity of the instrument on the laryngeal face of the epiglottis, and gliding it quickly through the rima glottidis, carry it down to or below the bifurcation, as the case may require. It is necessary that the patient should continue to respire, and the instrument is most readily passed during the act of inspiration. The tube being introduced, the point of the syringe is

inserted into its opening, and the solution injected. This latter part of the operation must be done as quickly as possible, or a spasm of the glottis is likely to occur. Indeed, if the natural sensibility of the aperture of the glottis is not well subdued by previous applications of the nitrate of silver solution, or if the tube in its introduction, touches roughly the border or lips of the glottis, a spasm of the glottis is certain to follow, which will arrest the further progress of the operation. The *epiglottis, which is nearly insensible* (and this you may prove on any person, by thrusting two fingers over the base of the tongue and touching, or even scratching with the nail, this cartilage) should be our guide in performing this operation. The strength of the solution for injecting is from 10 to 25 grs. to the oz. of water. Commencing with 10 or 15 grs. to the oz., its strength is subsequently increased, and the amount I now employ is from ½ to 1½ drachms of this solution.

"In cases of bronchitis, asthma, and in phthisis, even the employment of the tube once or twice a week, diminishes the cough and expectorations, with great certainty, especially in the two former diseases; and many cases have recovered under the local treatment after other means had failed. The applications of the sponge-probang are continued in the intervals of the employment of the tube."

My period of attendance on the clinical wards having expired in January, it was not until last May that I had an opportunity of making a series of observations on this subject. I was then fortunately assisted by Professor Barker of New York, who showed me the kind of catheter he had seen Dr. Green employ, and demonstrated the manner in which the operation was performed. Without entering into minute particulars, I have only to say that I have confirmed the statements made by Dr. Horace Green. I have introduced the catheter publicly in the clinical wards of the Royal Infirmary, in seven patients. Of these five were affected with phthisis in various stages—one had chronic laryngitis with bronchitis, and one chronic bronchitis, with severe paroxysms of asthma. In several other cases in which I attempted to pass the tube, it was found to be impossible—in some because the epiglottis could not be fairly exposed, and in others on account of the irritability of the fauces and too ready irritation of cough from pressure of the spatula.

My experience of this treatment is as yet too limited to permit my saying anything of its permanent effects. In the case of bronchitis with asthma—a female, aged 24—I have now injected the lungs eleven times, at first throwing in ʒij. of a solution of nitrate of silver, of the strength of ʒss. of the distilled salt to ℥j. of crystallized water, and latterly, I have thrown in ʒss. of a solution of the strength of ℈ij. to ℥j. She declares that no remedy has had such powerful effect in lessening the cough, diminishing the expectoration, or delaying the asthmatic paroxysms. She breathes and blows through the tube, when inserted four inches below the larynx, and I have been surprised at the circumstance of the injections not being followed by the

slightest irritation whatever, but rather by a pleasant feeling of warmth in the chest (some have experienced a sensation of coolness), followed by ease to the cough, and a check for a time to all expectoration.

I think it of importance that these facts should be known to the profession, as a homage justly due to the talents of a distinguished transatlantic physician, and with the view of recommending a practice, which, if judiciously employed, may form a new era in the treatment of pulmonary diseases.—*Edinb. Med. Journal, Nov.* 1857, *p.* 389.

30.—EFFECTS OF LOCAL INFLUENCES ON SPASMODIC ASTHMA.

By Dr. Hyde Salter.

[This paper was read before the Medical Society of London.]

Its purport was to show that, in a very large proportion of cases of asthma in which it has been fairly tried, change of locality effects an instantaneous cure, which is permanent as long as the asthmatic continues his residence in the place that has cured him. The author remarked that, although the subject of his paper was a single method of cure of a single disease, yet that the efficacy and completeness of the cure, and the painfulness and intractibility of the complaint, vindicated it from unimportance: and, indeed, that in so distressing and unmanageable a disease, any remedy that offered even a small percentage of cures might be considered the greatest possible boon. The paper was illustrated by nearly thirty original cases, and the points that the author considered to be established were as follows:—

a. That residence in one locality will radically and permanently cure asthma resisting all treatment in another locality.

b. That the localities which are the most beneficial to the largest number of cases are large populous and smoky cities.

c. That this effect of locality depends, probably, on the air.

d. That the air that would be imagined to be the worst for the general health is, as a rule, the best for asthma; thus the worst parts of cities are the best, and conversely.

e. That this is not always the case the very reverse being sometimes so—a city air not being tolerated, and an open pure air effecting a cure.

f. That there is no end of the apparent caprice of asthma in this respect, the most varying and opposite airs unaccountably curing.

g. That, consequently, it is impossible to predict what will be the effect of any given air, but that probably the most opposite to that in which the asthma seems worst will cure.

h. That some of these differences, determining the presence or cure of asthma, appear to be of the slightest possible kind, arbitrary, and inscrutable.

i. That the mere conditions of locality appear to be adequate to the production of asthma in a person whose disposition to it was never

before suspected, and who probably never would have had it, had he not gone to such a locality.

k. That, consequently, probably many healthy persons who never have had asthma, and never may, would have been asthmatics if their lot had been cast in other localities.

l. That possibly there is no case of asthma that might not be cured if the right air could only be found.

m. That the disposition is not eradicated, but merely suspended, and immediately shows itself on a recurrence to the original injurious air.

n. That change of air, as change, is prejudicial.

o. That, from the caprice of asthma, the constancy of the result in any given case is often deranged.—*Lancet, Dec.* 26, 1857, *p.* 648.

31.—THE "MARSHALL HALL METHOD" IN THE TREATMENT OF ASPHYXIA.

By John Wiblin, Esq., Southampton.

On Saturday, the 10th of October, a young man named Kanes, aged eighteen, in the employ of a fishmonger of Southampton, in the act of going on board the *Australasian* steamer, missed his footing and fell overboard. An alarm was immediately given, when Bombardier Connor, about to sail with his company for India, hearing that a man had fallen overboard, stripped himself of his clothes, and jumped into the water to the rescue of the drowning man. He dived after him three times in the water about the ship, and was at last obliged to abandon his praiseworthy efforts. R. Russell, dock-headman, was immediately dispatched to procure the grappling-irons; and on his arrival alongside the vessel, made two other unsuccessful attempts to seize the body. Joseph Fryer, foreman to the dock company, subsequently made two hauls from stem to stern of the steamer, and his exertions proved also of no avail. Failing in their efforts to discover the body, Russell was let down into the pilot's boat, a distance of twelve feet, by means of a rope, and then made one haul with the irons from the stem to the stern of the ship, and was again unsuccessful. He lastly made another haul from stem to stern, and succeeded in finding the body. Kanes was now lifted into the boat, a rope was lowered from the ship, to which his body was secured; he was then hauled up to the quay, and finally taken on board the steamer and deposited in the galley, where his clothes were removed and exchanged for hot blankets.

The company's superintendent states most positively, that the body was *completely submerged* for a period of *ten minutes;* and his statement is further confirmed by Russell, Fryer, and several of the bystanders. The above details may appear somewhat prolix; but they are given with a view to establish, in the most unequivocal

manner, the calculation of time occupied in discovering and finally landing the body. Medical assistance was sent for in every direction, and the first person who arrived was Mr. M'Cowan, the surgeon of the ship, quickly followed by Mr. Thurston, surgeon to the *Orinoco*, and myself. The first step in our proceedings, on the suggestion of Mr. Thurston, was to remove the body from the galley (or kitchen) of the vessel to an open space in the ship, where there was a free current of air; the position of the patient was changed from supination, and he was placed on his face, his wrist being carried upwards, as directed by Dr. Marshall Hall, and placed under the forehead. Pressure was now made along the course of the spine and thorax, with a view to induce *ex*piration: the pressure was then removed, and its removal was followed by slight *in*spiration after the lapse of about *forty minutes*. The weight of the body was then removed from the thorax and abdomen by gently turning it on its side, and a little beyond. These movements were again and again performed, about sixteen times in the minute, and every other remedial measure adopted as suggested and laid down by the distinguished authority above quoted. After the lapse of one hour and a quarter, we imagined that there was a slight movement of the ribs. We still persevered, adding to our prone and postural treatment, the free inhalation of ammonia, when, after a further continuance of our unceasing efforts, we observed that the ribs moved naturally, that the carotids pulsated, the nostrils expanded, the heart performed its ordinary functions—in a word, that after *five hours'* persevering efforts, the patient was enabled, without artificial assistance, to perform the ordinary functions of respiration. During the whole period of our treatment, the pupils remained fixed and dilated, and we were constantly reminded of the imperative necessity of continuing without intermission the means to keep up artificial respiration, as the patient relapsed into a comatose condition, on ceasing for half a minute only, the systematic movements of expiration and inspiration.—*Lancet, Nov.* 7, 1857, *p*, 482.

DISEASES OF THE ORGANS OF DIGESTION.

32.—TREATMENT OF CYNANCHE MALIGNA.

By Dr. W. A. Bryden, Mayfield, Sussex.

[During an epidemic of the disease which has for some time been raging in the neighbourhood of Mayfield, the author has met with great success from the treatment here recommended.]

The symptoms presented by the majority of cases were those described by Fothergill, Bretonneau, and others: varying from slight diphtheritic tonsillitis to nearly complete obstruction of the throat, with whitish or gray-coloured specks and patches on the palate, tonsils, and uvula; accompanied by fever of a low typhoid type, and

great prostration of the powers of life. In only one of the cases did I notice any rash, and in that it was of a papular character.

The treatment which I have found most successful has been to give powdered guaiacum in combination with chlorate of potassa; to support the strength with beef-tea, mutton-broth, &c.; and to cause the patient to frequently gargle the throat with a solution of chlorinated soda; or, if he be too young, or unable from any cause to use the gargle well, to cause his throat to be mopped or sponged with it. The secretions, of course, must be attended to; and in the later stages of the disease, tonics, such as quina, or bark, and nitric acid, will be beneficial.

I was led to use the guaiacum in this disease from having frequently seen the benefit derived from it in the ordinary cases of cynanche tonsillaris—a circumstance which, if I mistake not, was first pointed out by Mr. J. Bell, of Barhead, twelve or fifteen years ago. The more *sthenic* character of the cynanche tonsillaris, however, renders the addition of nitrate of potassa to the guaiacum preferable to the chlorate.—*British Medical Journal, Nov.* 21, 1857, *p.* 967.

33.—ON THE USE OF PEPSINE IN THE DIGESTION OF DISEASE.

By Dr. T. K. Chambers, Physician to St. Mary's Hospital, &c.

[So early as the time of Pliny the fluids of the stomach of sucking animals were in common use for a variety of medicinal purposes, and in more modern times Spallanzani, Laennec, and recently Dr. Handfield Jones, of St. Mary's Hospital, have employed similar substances, though the disgust occasioned by their nature prevented their more extensive use.]

The matter showed itself in quite a new light when an ingenious French pharmacien, M. Boudalt, made the very elegant and agreeable preparation, now so well known to the profession as "*poudre nutrimentive.*" It is simply pepsine from the sheep's stomach dried on starch, with lactic acid, added or not according to circumstances. When, one day in the autumn of last year, Dr. Waller Lewis showed me some of this powder he had brought from Paris, I saw in a moment that it was what we had been so long wanting, and instantly ordered a kilogramme over for experiment. You have since that time seen me prescribe it to numerous patients in the wards, and I have also employed it frequently in private practice, so that I think we are in a position now to form an idea of its value to the practical physician.

The cases in which I have administered it with advantage are six of phthisis pulmonalis, one of cancer near the pylorus, two of gastric ulcer, one of hysterical vomiting, two of nausea, one of hysterical pain after eating, two of atonic pain after eating, one of atonic gout,

one of dilated stomach, one of gastric flatulence, three of low fever and two of pneumonia. In these all the benefit which physiological reasoning would lead us to expect from the remedy has followed.

I have also injected it *per anum*, mixed with food, in a case of ulcerated œsophagus, and in a case of manio-hysterical vomiting and dysphagia. But in neither did it appear to delay death. Probably the ilia are the only part of the alimentary canal capable of absorbing chyme.

Several other cases of atonic pain after eating, in which I have given pepsine, I have not since heard of, but probably should have done so had any harm happened.

In one case of chronic dysentery it caused nausea and obliteration of appetite. In one case of consumption, and in one of pendulous tumour of the abdomen (attached probably to the pylorus), it purged, the patient. These are the only instances of inconvenience that I have been able to assign to the remedy.

The phthisical cases have been those where a progressive anæmia was accompanied by an inability to digest meat or other albuminous food. This inability is exhibited in three ways: first, by the eating of such diet, even in very small quantities, being followed by a sense of great weight and oppression at the epigastrium, and sometimes by actual vomiting; secondly, by the passage of loose fetid stools containing much unaltered muscular fibre, lumps of fat, and such-like remnants of a former meal; thirdly, by entire loss of appetite and an instinctive nausea excited by the bare idea of flesh food. Often all three phenomena exist together; but each one may be found separately, and is of itself a sufficient indication of the patient's state.

The pathological explanation of these symptoms is an excessive secretion in the upper part of the alimentary canal of alkaline mucus, which envelopes the food, and prevents the action of the gastric juice upon it. The consequence is, either its rapid ejection unaltered, or its decomposition, and the evolution of fetid gas. If vegetable food be mixed with the meat, it ferments into lactic and acetic acids, and thus you may have acid eructations from the stomach, and acid diarrrhœa arising out of the want of acid gastric juice. If this excessive secretion of mucus is recent and moderate, the appetite may remain uninjured, nay, may sometimes be morbidly increased; but a long continuance, joined to progressive pulmonary disease, is sure to induce an anæmic condition of the alimentary canal, which results in a disgust for food.

Now this state of things it is very important to check. If it goes on, the patient cannot take in sufficient quantities the meat which should refresh his degenerating muscles and pale blood, he cannot take the cod-liver oil which is to replace his emaciating tissues; he cannot, from weakness, take the exercise which might renew his whole diseased system. And I do not know any remedy which more readily, obviously, and directly does what it can towards checking it

than pepsine. It does immediately and surely what it can; but then that is not very much. Do not raise your expectations of its powers too high, or you will be disappointed. Understand clearly what position this agent holds in the rational materia medica, and then you will know what good results you may demand with reasonable hopes of obtaining them. It is an *artificial*, and, therefore, a *partial* substitute for a *natural* process. Gastric juice prepared by a healthy animal is mixed with the food, instead of that which the patient's stomach ought to prepare. And it acts in the body just as it would out of the body under the same circumstances of heat and motion. The chewed meat is dissolved by it just as you see the white of egg suspended in this beaker dissolved by it; and the putrefactive process is arrested by it in the intestinal canal just as you perceive the putrefactive process is arrested by it in the experiment under our eye. For you may observe that this albumen suspended in pepsine is quite sweet, whereas that soaked for the same time in saliva is most fetid. It is, therefore, a substitute for the natural secretion, and to a certain extent supplies its place. But like all imitations of Nature it is coarse and imperfect. The solvent instead of being gradually and continuously poured on to the outside of the mass of food, is mixed up in the middle of part of it, and acts merely chemically, without any of the mechanical and physiological helps belonging to natural digestion, and consequently soon exhausts its energies. The chyme, or albumen prepared for absorption, instead of being wiped off, and swept away by the stomach, remains for some time mixed up with the pepsine, so that the latter is not freed for the solution of a small portion. By this imperfect process only a very small quantity of meat can be dissolved at once.

Hence, if you hope that by administering pepsine with it, you can get a full and sufficient meal eaten at once by your consumptive patient, you will fail. Give half a mutton chop with the remedy the first day; and if that is digested well, try a whole chop the next; but remember, then, you have got to the end of your tether, and that the digestion of a larger quantity will not be at all assisted by artificial solvents. Also, after a chop has been digested and absorbed twice, or even once, a-day by this means for about a week or ten days, the expedient has probably done all the work that can be asked of it, and the stomach has either recovered sufficient energy to digest alone, or will require different remedies to enable it to do so. Therefore, for the pepsine to be completely successful in these cases—first, it must be given only to those who cannot digest half a mutton chop without it; secondly, more than a chop must not be given at once; thirdly, it must not be required to go on alone improving the patient's condition for more than a week or ten days.

But for the time named, I do advise its being given alone, and the action not interfered with in general by other drugs. Many will really prevent its chemical effect, and all will confuse your judgment

of the advantage gained. In this time you will generally find that the repugnance of the patient to meat has been overcome, and that a small quantity of it at a time can be relished and digested ; the morbid fetor of the stools diminishes, and the flatulence and distress arising during their passage through the bowels ceases. A renewed strength and a renewed power of assimilation commence, the sleep becomes more natural, with the diminution of night-sweats and hectic; while, at the same time, the pulmonary symptoms of cough, dyspnœa, &c., relax, and a step at any rate is taken in the right direction towards the cure of the disease. It is remarkable, too, what a slight improvement in the digestive powers will often enable iron and cod-liver oil to be taken. These drugs are. you know, the main stays in the treatment of tubercular consumption. and any expedient, however temporary, which will pave the way for their administration, is a great boon.

It would not suit the plan of the present lectures to quote in detail these consumptive cases. They differ much from one another in their unessential characters—namely, in the stage of the disease, their ages, sexes, and general phenomena; while they are closely similar in essential points—that is to say, in those which I have described as indicating a mucous condition of the stomach, preventing the gastric juice being poured out on the food, and finally leading to anæmia and atrophy of the secreting membrane. They resemble one another also in exhibiting an immediate and uniform amelioration of limited extent. In one man, who had loss of voice apparently from crude tubercle in the lungs, with ulcerated trachea, the amelioration of voice and cough continued so long, that I let him remain three weeks taking pepsine alone without other drugs; but, then, he also continued to improve more afterwards on cod-liver oil, so that he might just as well have commenced it sooner. In another, who had tubercular ulcers in the bowels, afterwards fatal, there was an idea that the pepsine caused a relapse of diarrhœa ; but I suspect the coincidence was accidental. These are the only instances where it appeared to do more good or less good than I have attributed to it.

The case I alluded to of cancer near the pylorus is a type of a disease necessarily fatal, being still worthy of the careful attention of the medical man. When the patient came under my care, she was unable to keep anything at all on her stomach, every solid, and even an ounce of beef-tea, was vomited unchanged within half an hour of its ingestion. She had been taking prussic acid, soda, creasote, opium, and a variety of remedies without benefit; and, as might be expected, was dying rapidly of starvation. I ordered her immediately half a mutton chop, with fifteen grains of Boudault's "poudre nutrimentive," twice-a day, and an ounce of milk and lime-water every two hours. She kept all that down; it passed the pylorus, and nourished her so far that she had a good night's sleep, and the next day was able to take a whole mutton chop. So she went on for three weeks, gaining flesh, losing

her pain, and acquiring a cheerfulness about the future, unwarranted by the gloomy prognosis which truth compelled me to give her. So far all was right; reason had reasoned well. But I feel it a duty to tell you the mistakes I make, as much as the occasions on which I act wisely. And I find recorded in my note-book a warning, which I advise you to profit by, of the importance of "letting well alone." The patient had from the first jaundice, with pale stools and bilious urine; and now, I thought, had sufficiently recovered strength to bear an endeavour to make the liver clear the blood of its bile a little more briskly. I therefore gave her some nitro-hydrochloric acid, which is often of great use under similar circumstances. But the result was most unfortunate. The vomiting returned with violence. The drug was discontinued, and it stopped, but not before the ground gained had been lost. Then, again, contrary, I must say, to my wish, it was judged expedient to give the patient mercury, and she rapidly sank. The jaundice was then proved to be dependent on cancer of the gall-bladder. Now, here it is impossible not to allow that life was prolonged by artificial pepsine, and would have been further prolonged but for the Anglo-Saxon propensity in both physician and patient for continuous improvement.

In one case of hysterical vomiting, and two of nausea preventing due quantity of food being taken by hysterical persons, this remedy has appeared to enable the patient to swallow meat. The mere nutriment thus imbibed has improved the appetite for future meals; and the valerian and salt sponge-baths afterwards administered seemed to have a more rapid effect than without it. The rational explanation of its good influence is, that both in hysteria and anæmia the secretion of gastric juice is apt to be irregular and deficient, and that the morbid processes here act, as is so often the case, in a circle; the non-secretion of gastric juice still further starving the blood and aggravating the hysteria and anæmia, and that further aggravation again diminishing the secretion. But once breaking the magic chain, and enabling even a single meal to be well digested, begins a march toward health which it is comparatively easy to guide afterwards.

Closely connected with the last-named complaints is, in the female sex, atonic gastralgia. Indeed, I may say it is practically identical. At the same time that the gastric juice is imperfectly secreted, the muscles of the stomach refuse to perform the peristaltic motions with sufficient activity. Hence not only is the alimentary mass a greater inconvenience than it ought to be, but it actually lies longer than usual in the first portion of the canal, as may be found on percussion of the epigastrium. It is a common consequence, in the educated classes, of excessive mental and sedentary labour. Where this is very great, I have found pepsine of some use; but in the slighter cases, which more frequently come before us, I have not seen any apparent benefit accrue from it. A change of habits is here the only permanent remedy, and of drugs strychnine is the most efficacious. I

see that M. Boudault prepares a powder in which strychnine is combined with pepsine and lactic acid. I presume it is for this sort of cases that it is intended, but I do not like mixing up prescriptions in that way, and prefer the strychnine alone, as it is the real active ingredient.

In a case of diarrhœa and mucous vomiting, occurring in an old victim of atonic gout, the stools became more natural and less frequent, and strength was regained on taking pepsine and mutton chops instead of opium and acetate of lead.

As cases of acute disease have an innate tendency to get well, they are not of course such good tests of the essential benefit derived from remedies. And it is only by comparison on a large scale that one could speak of fever and pneumonia being benefited by pepsine. There seemed, however, in those alluded to, an immediate improvement to take place in the appearance of the tongue and of the evacuations; and it is impossible not to think that the amelioration thus evidenced of the alimentary canal would conduce to lessen the mortality of the disease.

On the whole, then, I cannot but conclude that we have in artificial pepsine a valuable and safe remedy, and an important aid to rational medicine.

The way in which I have given it has depended on the diet on which the patient is. If regular meals are eaten, then it is best taken spread as a sandwich between two thin slices of bread at the commencement of the dinner. Fifteen grains of the starchy powder is the usual dose for an adult. If the patient is so ill that the food is obliged to be administered more frequently and in small quantities, so as to keep up a continuous supply, smaller doses of the pepsine powder may be given in a draught every four or five hours.—*Lancet, Oct.* 31, 1857, *p.* 435.

34.—ON DYSENTERY.

By Dr. STEPHEN H. WARD, Physician to the Seamen's Hospital, "Dreadnought."

[Having in the first part of his paper given a series of cases illustrative of the different varieties and degrees in which dysentery may be met with in this country, whether as indigenous or as the sequel of the acute disease contracted in tropical climates, the author observes, with reference to treatment,]

I would remark, in the first place, that slight cases get well rapidly under rest, diet, and astringents, which, if neglected, would, under the least exciting cause, assume a more acute and unmanageable character; and that it is, consequently, important not to allow an individual to go about with a half-cured dysentery. I have found the truth of this observation confirmed by the fact that patients who, contrary to advice, had left the *Dreadnought* before a cure was quite established,

had returned in a week or two, with considerable aggravation of symptoms. I would observe, in the next place, that the worst cases, when not complicated with incurable organic disease, generally do well, even although the period of cure may be extended over several months. The great amount of mischief that has to be repaired, renders it evident that the cure must be very protracted. In the treatment of the more chronic cases, it is essential for the practitioner not to be enamoured of, or obstinately persevere in, any special remedy. Remedies which, when first exhibited, produce most satisfactory results, quite lose their efficacy after they have been administered for a few days or a week or two. It is a point insisted upon by all who have had large experience in this disease, and well illustrated by one or two of the foregoing cases, that most benefit is to be expected from a succession or change of remedies. There are two other practical points to which I would direct attention—viz., the suddenness with which certain cases begin to mend, that up to a time. have proved most troublesome, and the importance of not giving up the treatment prematurely.

In the treatment of sub-acute and also of chronic dysentery, the first thing to be insisted upon is *rest*. a position—the recumbent—in which the bowels are best supported and kept quiet. In the sitting or standing postures there is no efficient support of the bowels; in walking the peristaltic action is increased, and the bowels are directly irritated by the action of the abdominal muscles. Position, alone, produces most beneficial results. I have found patients who had previously been travelling or moving about, at once relieved by rest; their stools diminishing in frequency even before any medicine was given. The action of the skin, which it is so desirable to promote, is also more evenly maintained in bed. The application of a broad flannel roller tends to carry out the indication of support, and determination to the surface.

Next in moment to rest is *diet*. The invalid should be placed upon that kind of diet which gives least work to the bowels, which least stimulates peristaltic action, and which is most likely to be assimilated should there be, as is often the case, any mesenteric complication. Drs. Abercrombie and Jackson and Mr. R. Martin insist strongly upon this point. The latter says "There is no consideration of more serious importance than the diet; a diet which barely sustains the system, and which is bland and unirritating, being all that ought in any case to be allowed. Neglect of proper diet not only retards the progress of cicatrization, but it tends to reproduce and to extend ulceration, and thus to cause dangerous and even fatal relapse. A deprivation to the very verge of starvation would, in many cases, prove salutary, by calming peristaltic action, and thus affording time for the healing of ulcerated and abraded surfaces." My own experience is in entire accordance with the above; and I cannot indorse the opinion of Dr. Graves, founded on the results of his own practice, that meat is

far too much abstained from. I have invariably found the too early recourse to meat diet to be followed by marked irritation and griping, and aggravation of symptoms. I am, of course, speaking of cases where there is more or less extensive ulceration. Milk is the aliment best adapted for patients suffering from the disorder under consideration. Farinaceous articles of food are also admissible. Wine should be administered where there is much prostration.

The special therapeutical treatment will necessarily vary with the degree and character of the disease. In the sub-acute cases, and in the severer form of the dysentery of this country, I have found no remedy equal to the Dover's powder, in ten-grain doses, given every six hours, with an occasional dose of castor oil, guarded by a few drops of laudanum for the removal of fæcal matter. The administration of a large injection of gruel, which may be combined with a little turpentine if there be tympanitis, is sometimes followed by marked relief; dislodging fæcal matter from the large bowel, and acting as an internal fomentation. If there be a deficiency of bile in the motions, a few grains of mercury with chalk may be combined with the night-dose of Dover's powder. If there is much pain and tenderness, great benefit is derived from the application of a few leeches to the anus if the sigmoid flexure or rectum be affected, or over the ascending or transverse colon if these be the seat of the disease. In sub-acute cases confined to the rectum, medicines exhibited by the mouth do but little good; here, leeches to the anus and soothing injections with opium are best calculated to relieve the inflammation and the resulting tenesmus, and to induce discharge of feculent matter.

In the purely chronic form of the disease, the treatment consists in the administration of mineral and vegetable astringents combined with opium, in the occasional use of aperients for the removal of fæces and foul secretions, in the exhibition of mercury or nitro-muriatic acid, for their alterative action, when the hepatic secretion is either deficient, irregular, or unhealthy, and in injections of different kinds for the relief of tenesmus, for local astringent action when the lower portion of the bowel is affected, and for the removal of matters accumulated in the intestine.

When the ulceration has been confined to the lower extremity of the colon or the rectum, and attended with discharge of blood, I have used, with a view to direct astringent action, and with much advantage, either an injection of acetate of lead, in the proportion of ten grains to two ounces of starch or gruel, or of nitrate of silver, in the proportion of three or four grains to two ounces of distilled water, followed in an hour or so after, by a soothing injection. Gallic acid and sulphate of zinc, administered in a similar way, have also done good service. The value of timely injections of gruel, or doses of castor oil, for the removal of feculent matter and putrid secretions, can scarcely be over-rated. Such accumulations not only keep up irritation, but they prevent astringents from acting upon the ulcerated sur-

fæces. There is, indeed, no reason why we should allow fœtid discharges to remain in contact with an ulcer in the colon more than with one occurring upon the leg. When the upper part, or more or less of the entire tract of colon is involved, astringents administered by the mouth prove most serviceable. When there is much ulceration, attested by sanious, muco-purulent stools, the mineral astringents, as sulphate of copper, acetate of lead, &c., seem to answer best. The mercury and chalk, or nitro-muriatic acid, act well in altering or promoting hepatic secretion. The emaciated forms and cachectic condition of patients labouring under this disease, generally contraindicate the exhibition of mercury for its specific action; although, in one case which came under my care, amelioration dated from salivation and tender gums accidently induced. The repeated application of slips of blistering plaster, when there is much tenderness, or any thickening of the coats of the bowel, is followed by good results. In the more advanced stages of the disease, and in the milder cases, when the stools, though frequent, are bilious. and contain but little blood or mucus, where, in fact, we have a healing but partly ulcerated and generally lax state of membrane, the vegetable astringents, as catechu, logwood. cusparia, simaruba, the gum-resins, gallic acid, &c, are very useful. Of all the vegetable astringents, I have found none to equal a strong decoction of the rind of the Bael fruit of Bengal. The plant which produces this is the Œgle Marmelos, belonging to the natural order *Aurantiaceæ*, and the pulp and rind of the fruit are native Indian remedies, to the value of which testimony is borne by Drs. Royle, J. Hooker, Wight, Mr. R. Martin, and other medical men whose experience enables them to speak to the subject. Dr. Hooker, in a letter in answer to some questions upon the point says, "I have given the Œgle, and seen it used with great effect." The decoction, which is now entered in the *Dreadnought* Pharmacopœia as Decoctum Œgles, is made by boiling three ounces of the dried rind of the fruit with a pint and a half of water down to a pint. Of this, an ounce and a half is given with a few drops of laudanum, three times a-day, Although I have decidedly found this the most useful stringent in the purely chronic or milder forms of dysentery, still, as I have before said, we must not be wedded to any one remedy, but ring the changes if necessary upon several.

The possibility of a case being complicated with, and irritation kept up by hemorrhoids, must not be lost sight of. Especial treatment must be at once directed to these when they exist, or astringents, &c., will avail but little. Prolapsus ani also, which results occasionally from the severe straining in the earlier stage of the disease, becomes, in the latter stage, itself a source of irritation and consequent diarrhœa. It may be relieved in some instances, by strong astringent injections; in others, by removing portions of the loose hypertrophied external integument with which it is constantly associated, or by the direct application of the nitrate of silver or nitric acid to the portion of thickened and relaxed mucous membrane which is prolapsed.

In the treatment of any case of old-standing dysentery, we must, as I have before said, look to the possible modifying influence of some constitutional taint. Indications of scorbutus, or the pre-existence of this at some recent date, must be met by the administration of lime or lemon juice. I am, indeed, inclined to think, that the citric acid which must be contained in the pulp of the Bael fruit is an element in the success which has attended this remedy in India. When there are evidences of tuberculous diathesis, as cough, hectic, bad family history, &c., the cod-liver oil should be given in conjunction with the mineral acids. Sometimes the leaven of old intermittents still lurks in the system; and then quinine is a useful adjunct to other remedies. A course of iron, generous diet, and change of air, are necessary, when the dysentery has been quite cured, in order to remove the cachectic, anæmic state of system associated with the more severe and protracted cases.—*Lancet, Nov.* 14, 1857, *p.* 488.

DISEASES OF THE URINARY ORGANS.

35.—ON MOVEABLE KIDNEYS—THEIR DIAGNOSIS AND TREATMENT.

By Dr. Charles J. Hare, Assistant-Physician to University College Hospital.

The affection or condition of the kidneys to which I am about to refer in the following observations is one which I believe to be not merely of some interest in itself, but also of considerable practical importance. This "moveable condition of the kidneys," though not very common, is yet, I feel convinced, much more so than is generally supposed, and is, at any rate, not so rare, but that instances of it must present themselves occasionally to most medical men who are engaged in extensive practice. On the other hand, I feel assured, both from the comparatively little notice generally taken of the subject in books, from the few cases recorded in the Medical Journals, and from conversations with many of my medical friends that the affection is not so generally known as it ought to be.

An acquaintance with this condition of the kidneys will tend in certain cases to throw much light upon, and to explain a series of otherwise obscure symptoms, or may lead us to an accurate diagnosis of the nature of an abdominal tumour in cases where, if the occurrence of this state of the organ were not known, much uncertainty as to its nature might be felt; hence, too, a favourable prognosis might be given when, under other circumstances, one of a very different character would probably be entertained. All medical men well know the dread which patients always feel when by any accident they have detected a tumour in their abdomen. It has occurred to me, in one of the cases of this affection which came under my care, to be

able to remove a great amount of anxiety from the patient's mind, by explaining the nature of the tumour she had detected; and Rayer states that in the cases of two medical men who suffered from this condition of the kidneys, he was enabled to set at rest the fears they entertained, though one of them actually contemplated relinquishing practice, in consequence of mistaking the nature of the disease under which he was suffering.

When the kidneys are of their usual size, and in their *normal position*, they give rise to but few physical signs. These organs may, however, occupy positions very different from their ordinary ones, and this malposition may be either congenital or acquired, and associated or not with malformation or alteration of size, and occasionally also with a greater or less amount of mobility. Thus it is by no means an exceedingly rare circumstance for the two kidneys to be so united as to form one body, giving rise to the so-called "horse-shoe," or crescentic kidney. In other, but rarer instances, all trace of renal structure is wanting on one side, while the kidney of the opposite side is almost always, under such circumstances enlarged. Again, one kidney may be in or near its natural position, and the other in some distant part of the abdomen. Thus Andral mentions a case in which one kidney occupied its normal situation, while the other was placed in the hypogastric region near the bladder. Somewhat similar instances have been described in the works of Bellini, Drouin, Lejeune, and several others, and records of such are to be met with scattered in the pages of more modern Transactions and Journals.

In Bonet's case one of the kidneys occupied the usual position of the uterus, being between the rectum and the bladder. In one detailed by Hohl, the left kidney was situated deeply at the inner side of the psoas muscle, and in two confinements retarded the progress of the fœtal head. An interesting example is quoted in the last volume of the 'Medical Times and Gazette,' (1857, ii. 54). A remarkable case is reported by Sandifort, where the left kidney was situated on the last lumbar vertebra, and the upper part of the sacrum, in such a position that its upper end was adherent to the lower part of the right kidney; the two kidneys, therefore, almost formed one mass.

In some instances a kidney may be considerably displaced by the enlargement of another organ, as the liver or spleen; and Rokitansky remarks, that where such is the case the hilus of the organ "is turned upwards, as the upper portion of the kidney is necessarily most depressed." One of the most remarkable examples is that mentioned by Rayer, where the right kidney was forced low down in the abdomen by an enormously enlarged supra-renal capsule. Cases are even on record in which a kidney has formed part of a ventral hernia.

It is obvious that malpositions of the kidneys, such as the foregoing, might cause these organs to be mistaken for other tumours, and it is with the practical view of suggesting the possibility of a

condition of this kind, in very obscure cases of abdominal tumours, that I have cited these examples. Many others of a similar nature might be quoted.

Although the conditions of the kidneys to which I have just now alluded, are sometimes associated with a slight degree of mobility, this is not by any means a chief characteristic of the malformations and displacements alluded to, and the organ can scarcely ever in these cases be pushed into, or even very near to, the normal renal region. But in the affection to which the following observations refer, a certain amount of mobility is the *characteristic sign*, and it is almost always such that the kidneys can, at least temporarily, be replaced in their normal position; while the organs themselves are not *necessarily* in any degree affected with any deviation from the natural size, form, or structure.

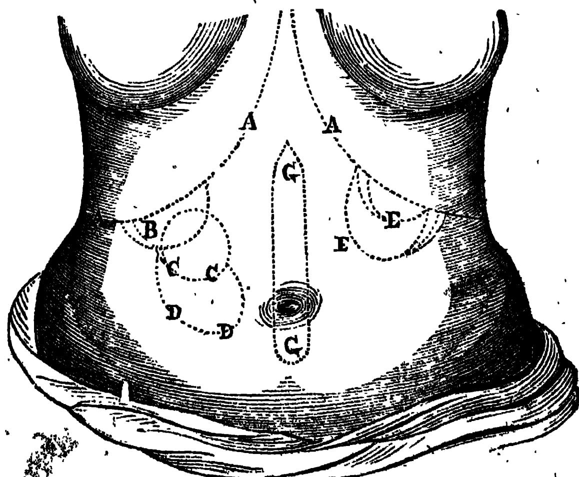
I may mention here that it occurs very much more commonly among females than males, and that mobility of the right kidney is much oftener met with than of the left, while, if the two organs be affected, the right one is usually the more so. The habitual position of a mobile kidney is almost always lower than natural, but it varies notably according to whether the patient be in the recumbent or the upright position, being lower, of course, in the latter: even when the patient lies on the back, (if the abdominal parietes are moderately flaccid and not too fat), the lower ends or perhaps even the greater part of the kidney may be felt below the costal cartilages.

In examining cases of abdominal tumours, it is often more convenient to stand on the side of the patient opposite to that on which the tumour is situated. In the cases under consideration, however, the best plan to adopt is the following:—Suppose the right side is to be examined; the patient being laid on the back, with a slight inclination towards the right side, the head and shoulders being raised, and the legs somewhat elevated, the observer should stand or sit to the right of the couch, but somewhat facing the patient, and should place the fingers of the left hand on the postero-lumbar region, immediately under the last rib, at the same time gently pressing or pushing forwards that part. The ends of the fingers of the right hand should then be placed in front, just below the costal cartilages, and there also a slight pressure should be exerted; the lower end of the kidney will thus probably be felt between the two hands. The patient should next be told to take a deep inspiration, and then to expire slowly; the observer should in the meanwhile keep his hands in the same position as before, but, just at the commencement of the expiration, should press the fingers of the right hand rather sharply down towards the renal region, and he will probably detect a much larger portion of the kidney between the hands than previously: it has been detruded downwards by the action of the diaphragm. Sometimes the kidney may thus be retained between the hands, and now and then it may be detruded much lower into the abdomen, but it usually slips

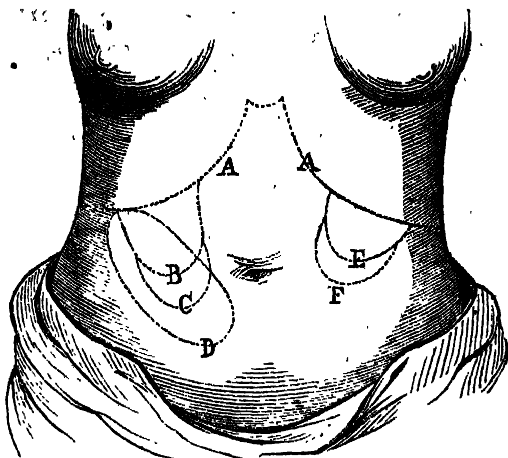
away from between the fingers, and is lost for a moment under the liver or in the proper renal region. In other cases, where the mobility is greater, if, at the moment of commencing expiration (after a deep inspiration), the right hand be pressed *edgewise* along the margin of the costal cartilages, and sharply downwards towards the renal region, the kidney will very probably glide or slip downwards, so that the whole of it will be below the hand—below, that is, the level of the position where its inferior border is usually situated.

In other instances, without this manipulation, the kidney is felt as a body so moveable that it can be taken up, as it were, through the parietes, and be shifted or pushed to different parts of its own side of the abdomen or even moved to the front of the spine. The degree of mobility, therefore, varies very much in different cases; it may amount to but a slight departure from the usual tolerably fixed condition of these organs, while on the other hand, I have met with a case in which the right kidney could readily be moved upwards and downwards, over a space of between four and five inches, and to a considerable extent transversely across the right half of the abdomen.

The following sketches show the position of the kidneys in two instances of the affection, during the ordinary condition of the patients when recumbent; and also exhibit the alterations effected on the position of the viscera by deep inspiration and by manipulation, as just described.



No. I.—Mrs. D., aged 36; April 13, 1852.—A, A, A. Margins of costal cartilages. B. Right kidney, ordinary position when patient is in recumbent position. C, C. Ditto, on deep inspiration. D. D. Ditto, position to which it can be moved, E, F, F, Left kidney, changes in position of. G, G. Strong aortic pulsation, position of.



No. 2.—Miss A. S., aged 29; March 25, 1857.—A, A. Edges of costal cartilages. B. Right kidney (perhaps slightly enlarged) position of during medium respiration. C. Ditto, effects of deepest inspiration. D. Ditto, position to which it can be moved. E. Left kidney, position during medium respiration. Ditto, effects of deepest inspiration and of manipulation.

The sensation on palpitation communicated by the kidneys to the fingers, is such that the organs can scarcely be mistaken for any other kind of tumour; they present, more or less perfectly, the kidney shape, the lower extremity is rounded, the surface very smooth, the mass itself hard and resisting; although it can be detruded downwards, it also glides with great facility back into the lumbar region. Pressure very generally gives rise to more or less tenderness, and may produce pain even shooting down the thigh or to the lower part of the abdomen; very generally a peculiar faint or sinking sensation is produced by pressure. When the kidney is displaced downwards a kind of void is felt by the hand applied to the postero-lumbar region, and in one or two cases Rayer mentions having observed a flattening or depression of that part. Dr. Gueneau de Mussy informed me that in a case under his care this depression was very remarkable, and was especially so when, at his request, the patient supported herself on the hands and knees. I have recently again seen the patient represented in wood-cut No. 1, and found a greater flattening or hollowing out of the right postero-lumbar region, then of the left; but the difference was very slight. Professor Oppolzer, as quoted in the 'Med. Times and Gazette, (1857, vol. i., p. 575) does not mention this condition.—*Med. Times and Gaz., Jan.* 2, 1858, *p.* 7.

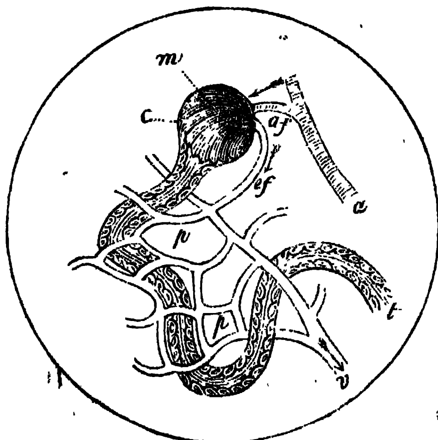
36.—*Left Kidney situated in the Pelvis.*—Examining the body of a man who had died of phthisis, aged 35, Dr. Isaacs found the left kidney located in the pelvis, its upper end being in contact with the bifurcation of the aorta, and its lower touching the posterior surface of the bladder, and lying on the fifth lumbar vertebra, and first, second, and third pieces of the sacrum. Its right edge was in contact with the rectum, and the left with the iliac portion of the brim of the pelvis. There were three renal arteries, one coming from the aorta, and two others from the right common iliac. The kidney was of the ordinary size, but the supra-renal capsule was twice its natural size, and of the shape of a fig-leaf, and it occupied its normal position in the lumbar region.—*New York Journal, Nov., p.* 340.—*Med. Times and Gazette, Jan.* 2, 1858, *p.* 19.

37.—ON RENAL PATHOLOGY.

By Dr. George Johnson, Physician to King's College Hospital.

The subject of renal pathology owes much of its interest and much of its practical importance to the fact, that disease of the kidney is often associated, either as cause or as consequence, with many of the commonest and most fatal diseases.

Fig. 1.



Plan of the minute structure of the kidney. *a.* Artery sending an afferent branch. *a f* to *m*, the Malpighian body. *e f*, Afferent vessel. *p.* The plexus of capillaries between the tubes. *v.* The vein. *t.* The uriniferous tube. *c.* The capsule of the Malpighian body.

The diagram will serve to remind you of the chief points in the minute anatomy of the kidney, for a knowledge of which we are indebted to Mr. Bowman. You see that the uriniferous tube ends or commences in a globular expansion, which forms what is called the capsule of the Malpighian body. The artery sends off a terminal branch, the afferent vessels, which pierces the capsule and so passes within the globular dilatation of the tube. In this cavity it breaks up into a capillary tuft, the vessels of which re-unite into a single vessel, the efferent vessel, which passes out through the capsule, and then enters a capillary plexus lying outside the uriniferous tube among its coils and convolutions. The course of the circulation through the kidney, then, as indicated by the arrows in the diagram, is from the artery, through the afferent vessel, into the Malpighian capillaries, thence through the efferent vessel into the inter-tubular plexus, and from this into the renal vein. Then you will remember that the uriniferous tubes are lined by cells which have all the characters of true glandular epithelium, as seen in the second diagram.

FIG. 2.



Portion of uriniferous tube, composed of basement membrane, with a lining of epithelial cells. The clear canal within the layer of cells is equal to about half the diameter of the tube.

Within this lining of cells there is a clear canal in the central part of the tube. Of this canal I shall presently have to speak in connexion with some of the varieties of tube-casts, which occur in the urine.

You will perhaps ask what is Bright's disease? To this question I must reply by telling you first, what is *not* Bright's disease. There are certain diseases of the kidney which, by common consent, are excluded from the category of morbid changes, to which the term Bright's disease is applied. These are—1. Diseases originating in local and mechanical injuries—stone in the kidney or bladder; stricture of the urethra; blows on the loins producing abscess, &c. 2. Tubercle, cancer, and hydatids in the kidney. These forms of disease were all recognised and described before Dr. Bright published his "Medical Reports." And now with respect to Bright's disease: It had long been known that dropsy and renal disease were occasionally associated; it was also known that some dropsical patients had albuminous urine. Dr. Bright's great merit and originality consisted in this, that he

that of the clear canal which is left within the layer of cells. The larger casts, which have the full diameter of the uriniferous tubes, and a remarkably sharp outline, have been formed in tubes which have lost their epithelial lining, and with it their proper secretory function. These large casts then indicate a more serious degeneration of the tubular structure than the small ones. They are often combined in the urine of the same patient, but the existence of a large proportion of the full-sized wax-like casts in the urinary sediment is usually a sign of serious import.—*Med. Times and Gazette, Jan.* 2, 1858, *p.* 1.

38.—THE CONSTITUENTS OF THE URINE AND THEIR SOURCES.

By Dr. A. H. HASSALL, F.L.S., Physician to the Royal Free Hospital, Author of "Food and its Adulterations," &c.

The following are the sources from which the different constituents which come under the denomination of the *Essential Constituents o the Urine* are derived:—

Urea is a nitrogenous compound, derived from the disintegration of some of the nitrogenized tissues, according to Dr. Prout, the *gelatinous* tissue of the body. The principal part of the *nitrogen* of the disintegrated tissues is eliminated from the system through this compound.

Creatine and *Creatinine* are also nitrogenous bodies derived, as appears from the researches of Leibig, from the disintegration of the *muscular* tissue.

Uric acid, according to Dr. Prout, results from the disintegration of the *albuminous* tissues. But it is probable that uric acid is in some cases in part derived from elements of food rich in nitrogen, imperfectly assimilated, and the same, perhaps, is also true in some cases with urea.

The *colouring matter* of the urine, which is a non-nitrogenous substance, and extremely rich in *carbon*, is supposed to be modified hæmatin, set free on the decay and breaking down of the blood corpuscles, and to be the vehicle by which much of the excess of carbon contained in the system is eliminated.

The *sulphuric acid* is formed in part by the oxydation of the sulphur contained in the proximate nitrogenized animal principles, as well as in taurine.

The *phosphoric acid* present in the urine proceeds in part from the oxydation of the phosphorus which forms one of the constituents of the nervous tissue, and especially of the brain.

The *silica* is set free by the disintegration of the osseous tissues.

Lastly, the *ammonia* of the urine is in part derived from the decomposition of the urea.

On the other hand, the constituents termed *Non-essential*, as all the chlorine of the chlorides, and great part of the sulphuric, phos-

phoric and silicic acids, are derived from the articles of drink and food consumed, together with the several bases, excepting part of the *ammonia*, as *lime*, *magnesia*, *potash*, and *soda*, with which the chlorides, sulphates, and phosphates, are in combination. Part, however, of these salts are, during assimilation, received into, and imbibed by the different tissues, and become set free again on their disintegration.

Having thus briefly pointed out the origin of each of the essential constituents of the urine, we are now in a position to understand what the presence of these in the urine, either in increased or diminished amount, really signifies—viz., the extent of the decay and disintegration of the particular tissues from which they are derived.—*Lancet, Jan.* 2, 1858, *p.* 1.

39.—ON THE DISCRIMINATION OF CERTAIN ORGANIZED AND UNORGANIZED MATTERS AND PRINCIPLES IN THE URINE.

By Dr. A. H. Hassall, Physician to the Royal Free Hospital, Author of "Food and its Adulterations," &c.

On the Discrimination of Epithelium.—Occasionally, deposits appear in the urine bearing considerable resemblance to mucus or pus, and which it is impossible to distinguish by the eye alone, but which, when examined under the microscope are found to consist almost entirely of epithelium. These deposits occur especially in the urine of women, the epithelial scales being derived, for the most part, from the vagina. More rarely, however, the deposit consists of the epithelium of either the renal tubules or bladder. Each of these three varieties of epithelium possesses well-marked structural peculiarities, by which it may be distinguished, either as they occur separately or when mixed together.

On the Discrimination of Pus.—A deposit of pus in urine is distinguished from one of mucus, first, by its appearance; it is more opaque and cream-like, and forms a more decided and equal sediment, and when the urine is shaken, it becomes equally diffused throughout, without any ropy or tenacious shreddy substance being visible.

If, however, the urine be very alkaline, the appearance presented by the purulent deposit is very different; it becomes acted upon by the alkalies of the urine, and is then converted into a semi-transparent, tenacious substance, very closely resembling mucus, from which, by the eye alone, there is no means of distinguishing it. This change of appearance is often observed in urines which contain pus, and which have been kept for some days; the deposit, from being soft and opaque, gradually becomes transparent and ropy. The appearances presented to the naked eye by a deposit of pus in fresh urine are often quite decisive.

The outward characters of the deposit having been carefully

observed, a portion of the urine, after filtration, is to be boiled in a test-tube; if this prove albuminous, there will be still stronger reason for regarding the deposit as one of pus, for, with a mucous deposit, as already stated, the urine is scarcely ever albuminous.

When we come to examine a deposit of pus with the microscope, we find that the granular corpuscles are much more numerous than in mucus; that they are more readily acted upon by dilute acetic acid; and that a large number of nuclei are disclosed in them; also that there is an absence of the fibrous shreds as well as of epithelial scales.

Thus, by the several characters, external and microscopical, now enumerated, pus and mucus may in general be easily and satisfactorily distinguished when in a separate state; when, however, these deposits are mixed together, the distinction is much more difficult, and in some cases quite impossible.

When pus has been acted upon by the alkalies of the urine, and converted into a substance resembling mucus, the distinction between the two may still, in general, be effected by means of the microscope, for in this case, while there will be an absence of epithelial scales, the pus corpuscles will be found to be considerably larger than they are under ordinary circumstances.

Another difference between mucus and pus is that the latter contains a rather larger proportion of fatty matter; this is seen under the microscope in the form of small, shining droplets or spherules, either free or contained in the granular corpuscles, or the fatty matter may be extracted by means of ether. The quantity of fatty matter in mucus is very small, and frequently it is almost entirely absent. When, therefore, fatty matter is left, on the evaporation of the etherial solution of a suspected deposit of pus, there is further reason for considering that the deposit really consists of that substance.

I have already referred to the fact that pus acted upon by alkaline urine becomes converted into a ropy substance, similar to mucus; this conversion is more marked, and is almost immediately effected, by the addition to the deposit of a solution of either ammonia or potash.

Urine containing pus is most commonly either neutral or slightly acid, and becomes alkaline only slowly, while mucous urine, on the contrary, even if acid when first passed, very quickly becomes alkaline and ammoniacal.

The liquid portion of pus, liquor puris, differs essentially from that of mucus, and holds in solution the following substances: albumen, a peculiar compound, pyin, or tritoxide of protein, which is soluble in water and precipitated by acetic acid, fat, and salts. The salts consist for the most part of chloride of sodium, with small quantities of phosphate, sulphate, and carbonate of soda, chlorides of potassium and calcium, earthy phosphates, and traces of iron, thus showing a resemblance in composition to the serum of blood.

Deposits of triple phosphate, especially when the crystals are small,

are very apt to be mistaken for pus—an error which is at once rectified by the employment of the microscope.

On the Discrimination of Albumen.—The detection of albumen in urine is very simple. A small quantity of the urine is to be heated until it boils, in a test-tube, over the flame of a spirit-lamp. As soon as the temperature of the liquid becomes raised over 170° Fahr., the albumen will become coagulated; and if the test-tube be set aside for a time, it will become deposited, when it may be collected, dried, and weighed. The precipitated albumen is soluble in solution of potash, but insoluble in nitric acid.

There are certain sources of failure and fallacy attending the detection of albumen in the urine:

Thus, if earthy phosphates be present in excess, they will become precipitated as soon as the urine is boiled, this precipitate resembles somewhat, and might be mistaken for, albumen, from which it is, however, distinguished by its solubility in nitric acid.

Again, it has been noticed, that, when urates are in great excess in the urine, a white precipitate of uric acid is occasioned on the addition of nitric acid, which might also be mistaken for albumen.

Dr. Owen Rees remarks, "I have observed this in cases of typhus fever of low type, and also in several cases of small-pox. This precipitate is distinguished from albumen by the fact that the addition of hydrochloric acid to a second portion of the urine will occasion a precipitate equally with the nitric acid, if it be owing to uric acid, but no precipitate will ensue if albumen be present."

A precipitate likewise occurs when nitric acid is added to the urine of a patient who has taken either copaiba or cubebs, and which, at first, closely resembles albumen. This precipitate arises from the deposition of the resinous matter contained in the above-named medicines. It is distinguished from albumen by its not subsiding as a distinct deposit, and by its producing a permanent opacity of the urine.

Another method of distinguishing albumen in such cases is by acidulating the urine with acetic acid, and then adding a solution of ferro-cyanuret of potassium. If albumen be present, it is thus immediately thrown down; whereas in the other case, if acetic acid produce a slight turbidity, this will not be increased by the addition of the ferrocyanuret of potassium. Lastly, no precipitate is occasioned by boiling, and the urine of persons taking copaiba or cubebs evolves, when first passed, the strong odour of those drugs.

But it sometimes happens that albumen is present, and yet is not precipitated on boiling; this happens whenever the urine is alkaline, the albumen being kept in solution by the alkali. In this case it is necessary first to acidify the urine with nitric acid, and then to boil. But nitric acid in excess precipitates albumen from the urine as well as heat. It is, therefore, best in most cases, to test both with nitric acid and heat, and it is always proper to ascertain whether the precipitate which appears on boiling is soluble in excess of nitric acid or not.

In employing nitric acid, the reagent should be added in excess, as it sometimes happens that the albumen first thrown down is redissolved; but when an excess of the acid is used, the albumen is thrown down permanently, and is not redissolved.

Dr. Bence Jones has stated, that he has found a few drops of a mixture of one part of nitric to three of hydrochloric acid much more decided in its effects, and much more delicate in its indications, than pure nitric acid. This is explained in the evolution of chlorine gas by the extraction of the hydrogen of the hydrochloric acid, one of the most delicate precipitants of the protein compounds being thus set free. But this test, like the ferrocyanide of potassium test, has the pro perty of precipitating other protein comounds besides albumen, as mucus, &c.

The quantity of albumen in urine varies greatly, from a mere trace to some grains to the ounce; and according to the quantity present, so varies the appearance of the urine on the applicationof heat. If the quantity be very considerable, the urine will become almost white, and nearly solid; whereas, if it be very small, the deposit may be so trifling as altogether to escape detection, until the test-tube be set aside for some hours so as to allow of the subsidence of the deposit. In this way the presence of a very minute quantity of albumen will be detected. When but little more than a trace of albumen exists in the urine, it is best to take a very large test-tube, and to boil some five or six drachms of the urine.

Albumen is also precipitated by dilute hydrochloric acid, ferrocyanide of potassium, bichloride of mercury, alcohol, creasote, tannin, and many other substances. It is not precipitated, however, by phosphoric and acetic acids which exert a solvent action upon it, nor by strong hydrochloric acid, with which, when warmed, it forms a purple-coloured solution.

For most purposes, it is sufficient to determine the quantity of albumen present in any albuminous urine, and not to carry the analysis further; in some cases, however, it is necessary to make a more complete analysis, and to ascertain the proportion of the principal constituents (especially urea) present, in which case we should preceed as follows:—

One portion of the urine is to be evaporated to dryness, and the urea dissolved out by means of hot alcohol; the alcoholic solution is evaporated in its turn to dryness in a water-bath; the residue dissolved in hot distilled water; after which an oxalate of urea may be formed, and this decomposed by means of carbonate of lime; or, in place of using alcohol, the urea may be dissolved out by means of water.

For the detection of the uric acid, a separate portion of urine (1,000 grains) should be employed, and treated thus: the albumen should be separated by boiling, the urine concentrated to about one-third its bulk, and the uric acid precipitated by means of hydrochloric acid in the manner pointed out under the head of uric acid.

It is said occasionally to happen, that albumen is present in urine in a hydrated state, in which, according to Dr. Prout, it occurs in chyle. This variety of albumen is scarcely affected at all by heat; but it is immediately coagulated by nitric acid.

Dr. Bird has pointed out (4th edit. 'Urinary Deposits,' p. 332), that when small quantities of albumen are present in urine containing a rather more than average proportion of phosphate of soda, the application of heat scarcely produces any visible opacity, until after the addition of an acid: and hence it is possible for the albumen to be erroneously regarded as existing in the hydrated state. In the latter stages of diabetes mellitus, Dr. Bird has stated that he occasionally found previously warmed urine to be rendered opaque on the addition of nitric acid, the precipitated matter appearing to resemble some of the oxygenized compounds of protein described by Mulder.

A remarkable substance allied to albumen has been detected in urine, by Dr. Bence Jones, in cases of rickets. It differed from albumen by not being precipitated by either heat or nitric acid; but on boiling the urine, and allowing it to cool, a precipitate fell which redissolved on the application of heat. Alcohol added to the urine readily coagulated this substance.

On the Determination of Chyle.—Urine containing chyle is usually more milky and opalescent than when it contains only oil. In chylous urine examined microscopically and chemically, all the usual elements of chyle will ordinarily be detected, as oil, albumen, and granular organic corpuscles, resembling the white corpuscles of the blood. The albumen is to be detected after filtration of the urine by coagulation in the ordinary manner. The oil may, or may not, be visible under the microscope in the form of droplets; but if present it may always be obtained by agitation with ether; lastly, the granular corpuscles are distinguished from the fat globules by their size, granular texture, and by the action of acetic acid and ether upon them; by the first reagent, nuclei are disclosed in the corpuscles, while in ether they are insoluble, and thus distinguished from the fatty globules, for some of which they might be readily mistaken.

The milky appearance presented by chylous urine is occasioned partly by the oily matter and the granular corpuscles present, and partly by precipitated albuminous, or more probably fibrinous matter. Chylous urine, when first passed, and while still warm, does not usually present the same degree of opacity and milkiness which it acquires when it becomes cold. This depends on the solidification both of the fatty and fibrinous matters present. If the quantity of chyle present be very considerable, the urine will sometimes acquire a gelatinous or semi-solid consistence, owing to the coagulation of the fibrinous element.

In some of the cases of chylous urine which fell under the observation of Dr. Prout, the albumen did not coagulate on the application of heat, but it did when nitric acid was added, and hence he was led to consider that this albumen was in an imperfect state.

The proportion of fat present in chylous urine may be so great that it may interfere with the gelatinization of the spontaneously-coagulable albumen or fibrine, but as soon as the fat has been removed by means of ether, the solidification will, in some cases, take place.

On the Determination of Fatty or Oily Matter.—Urine containing fatty or oily matter is usually, but not always, more or less turbid, and if the fat occur in connexion with chylous matter, it will not only be turbid, but it will possess a whitish and milky appearance more or less marked. Usually when a drop of such urine, especially if it has been allowed to stand at rest for some time, and it be taken from the surface, is examined under the microscope, droplets or spherules of oil will be seen, which are readily distinguished by their strongly refractive properties, as well as by their solubility in ether.

Should the presence of fat be suspected, and no globules of oil be visible under the microscope, a portion of the urine should be agitated with ether, which will dissolve out any oily or fatty matter which may be present, and which may be obtained in a separate state on the evaporation of the ethereal solution.

That the substance thus obtained consists really of fat is known by its greasy appearance, its insolubility in cold water, by its breaking up into droplets when agitated with hot water, and its solubility in ether.

It is not very often that a urine is met with containing only fat, for when this is present it is usually derived from chyle, some of the constituents of which are generally present in the urine with it.

But minute quantities of fat may be present in urine, independent of chyle, as in certain forms of Bright's disease, and also without occasioning the slightest turbidity. In this case, the fatty matter is found in the cells and renal casts thrown off, and which have become deposited from the urine after it has stood for some hours.

The microscope affords the only means by which the presence of oily matter in connexion with the renal cells and tubules can be ascertained.

In the Mauritius, fatty urine is epidemic, and it accompanies a peculiar form of irritative fever.

A peculiar kind of fatty matter, to which its discoverer, Dr. Florian Heller, (Heller's Arch., 1844 and 1845), gave the name of *uro-stealith*, has been detected in one instance in the urine. The patient, a weaver, twenty-four years of age, laboured under all the symptoms of calculus, and passed some small concretions, which, on examination, were found to be composed of the peculiar fatty matter in question. These concretions possessed the following characters:—When fresh, they were soft, becoming, when dry, hard, yellow, wax-like, brittle, and amorphous, and presenting by transmitted light a greenish-yellow colour. On the application of heat, they puffed up, inflamed, emitted a peculiar pungent odour, between that of shellac and benzoin, and left a voluminous ash. In hot water they softened, but did not dis-

solve; they were readily soluble in ether; the residue, on the evaporation of the etherial solution, assumed a violet colour. On the application of a gentle heat nitric acid, dissolved them with a slight effervescence, forming a colourless substance.

On the Determination of Fibrin.—Fibrin is distinguished from albumen by its undergoing solidification when effused from the blood-vessels. It usually occurs in the urine in connexion with blood, but not always so. Sometimes it exudes from the blood-vessels of the kidneys, and solidifies in the renal tubules, in the form of casts. In other, but very rare cases, the effused fibrin does not solidify until after the urine has been voided.

When the fibrin solidifies in the kidneys, the casts are usually met with in the urine. Whenever, then, these casts are observed under the microscope, or the urine becomes at all gelatinous on cooling, and this whether it contain blood or not, fibrin is present.

Now, almost constantly, albumen is voided at the same time with the fibrin; whenever, therefore, the latter is present in the urine, the former is almost sure to be found.

There is a form of deposit of frequent occurrence in the urine, with which I have been familiar for years, and which, since it bears much resemblance to a renal cast, may here be noticed. It consists of long threads of very variable diameter, but which are all more or less striated, showing that they are made up of fibrillæ of fibrin. I have met with them in the greatest abundance in urines depositing oxalate of lime; also in those containing excess of earthy phosphates and mucus, or which contain semen; indeed, I have found them to occur wherever irritation of the bladder from any cause exists, and as an evidence of which irritation they are to be regarded. They are found alike in the urine of men and women.

On the Determination of Keistein.—Another substance of great interest, met with in the urine of pregnant women, and with the characters of which it is necessary to become acquainted, is that known by the names of keistein and gravidine.

After the urine of a pregnant woman has been exposed to the air in a cylindrical glass vessel for two or three days, (and never later than the sixth day), a fatty-looking pellicle forms upon the surface, which at the end of two or three days, when the urine is becoming alkaline, gradually breaks up, and falls to the bottom as a sediment, frequently evolving at this stage a powerful odour of cheese.

This scum or pellicle, viewed under the microscope, is seen to be constituted of three distinct elements, and to consist of a granular base in which are imbedded well-defined crystals of the ammonio-magnesian phosphate, and droplets of oil. The only essential and distinctive constituent of keistein is therefore the granular matrix. This is not acted upon by acetic acid, but is dissolved by ammonia, and this it is that evolves during decomposition the cheesy odour above referred to. When this scum is collected in any quantity, to

presents a greasy and opaque appearance, resembling spermaceti, arising partly from the large quantity of triple phosphate present.

The triple phosphate may be dissolved out by means of acetic acid, and the oil by ether; the cheese-like substance being left behind.

The scum of keistein is distinguished from the ordinary phosphatic crust or scum, not only by the presence of oil and the casein or cheesy substance, but also by its not remaining on the surface beyond three or four days from its complete formation.

The urines on which keistein is formed rarely become turbid on boiling, or throw down any deposit on the addition of nitric or acetic acid, showing the absence of albumen but not necessarily that of casein, since this would not be precipitated by acetic acid unless it were present in large amount.

On the Determination of Blood.—When blood is contained in urine in amount at all considerable, its presence is sufficiently indicated by the eye alone. The urine will be observed to possess a reddish colour, and if it be set aside for some time, a reddish or rust coloured precipitate will subside, the presence of which is so peculiar that it cannot be confounded with any other coloured deposits which occur in the urine, as uric acid and the urates.

Moreover, if the quantity of blood be very considerable, the urine will become more or less gelatinous, and if a portion of it be boiled, it will be found to abound in albumen.

When the quantity of blood is very minute, the microscope affords the only ready and certain means of determining its presence. By this instrument, if the urine be fresh, the presence of the red and white corpuscles of the blood will be revealed in any sediment from urine which has been allowed to remain at rest a sufficient time. If the hemorrhage proceed from the kidneys, casts, containing blood corpuscles, are sometimes met with.

On the Determination of Bile.—When bile is contained in urine in considerable quantity, its presence is sufficiently indicated by the colour of the urine; this is especially the case in jaundice, in which the urine usually possesses a dark-yellowish green or brown colour, which is exceedingly characteristic.

When the quantity of biliary matter in the urine is less, the tint of the urine is only deepened and rendered of a brown or reddish hue. When this is the case, it becomes necessary to seek for the presence of bile, for which there are several tests.

One of these is Pettenkofer's test, which consists of sulphuric acid, free from sulphurous acid, and sugar. It is used as follows:—

To a small quantity of the urine, in a test-tube, about two-thirds of the bulk of sulphuric acid is to be added, drop by drop, so that the temperature of the mixture may not be raised above 144° Fahr., at which the colour characteristic of bile is destroyed.

To this mixture a grain or two of sugar or syrup is to be added, the whole shaken, and then allowed to stand at rest for a few minutes.

Should bile be present, the liquid will have assumed a more or less intense red colour, with a tinge of violet. This remarkable development of colour is not due to any change effected in the colouring-matter of the bile, since it takes place equally when the above re-agents are added to a solution of decolorized bile.

Should the suspected urine contain albumen, this should be first removed by coagulation and filtration, because with albumen and sulphuric acid and sugar a nearly similar colour is developed.

If the quantity of bile present be very small, the urine should be evaporated to dryness on a water-bath before the test is tried, and the bile dissolved out either by means of a little water or alcohol.

Another test for bile is that commonly known as Heller's test, which is thus employed:—

A little white of egg is added to a small quantity of the suspected urine, and after the mixture has been well shaken, a few drops of nitric acid: this causes the precipitation of the albumen, in combination with some of the colouring-matter of the bile, the precipitated albumen thereby assuming a dull-green or bluish colour.

When the quantity of bile is very small, the urine should be evaporated as before, and the albumen added to the aqueous solution.

A third test for bile in urine depends upon the action of nitric acid upon the brown colouring matter of the bile, called biliphœin. Two or three drops of nitric acid are to be allowed to fall upon a little of the urine spread out in a thin layer on a white surface. When bile is present in amount at all considerable, the mixture assumes a variety of changing and evanescent tints, green, violet, yellow, and pink, the latter colour usually predominating. As in the case of the previously described tests, should the quantity of bile present be very small, the urine must be evaporated before the nitric acid is added.

According to the late Dr. Golding Bird it occasionally happens that bile exists in urine in a modified, and, perhaps, oxidized state, in which it does not exhibit, with the tests above noticed, the characteristic reactions, the urine becoming merely imperfectly reddened. Ammonia, Dr. Bird states, then becomes a valuable test, it immediately producing a deep red colour. There are certain fallacies attending the ammonia test, arising chiefly from the presence of vegetable colouring matters in the urine, as those of rhubarb and senna, and on which ammonia acts in a nearly similar manner.

Lastly, there is the microscopic test, which has already been described, for bile when present in urine in small quantities.

On the Detection of Seminal Fluid.—In some cases a mucus-like deposit occurs in urine, which, on examination with the microscope, turns out to be semen; this is shown by the presence of the well-known seminal animalcules and corpuscles. The animalcules are nearly always dead, owing, perhaps, partly to the length of time which usually elapses before the urine is examined, and partly to the injurious action exerted upon them by the urine itself. Spermatic

animalcules are occasionally seen in urine in small number where there is no visible deposit.

Mixed up with the spermatozoa, octohedral crystals of oxalate of lime are frequently noticed. Some observers have gone so far as to state that whenever these crystals occur in urine, spermatic fluid is always present, a statement which is certainly erroneous.

In bringing to a conclusion the account of the analysis of the urine, the process given by Dr. Marcet for the extraction of "*two new acids from the human urine*" may here be described. He succeeded in procuring them, he states, whilst engaged in some researches in regard to the immediate principles of healthy urine in Messrs. Robin and Verdeil's laboratory at Paris.

"After the extraction of the urea by the addition of ether to the alcoholic solution of dried urine, the strongly acid mother liquor is evaporated at a low temperature, baryta water being previously added, to avoid the decomposition of the organic substance contained in the solution. The acids are then set free by the addition of sulphuric acid in excess to the remaining aqueous solution, which is shaken in a flask with alcohol and ether, and allowed to stand; after a few minutes the ether rises to the surface possessing an acid reaction, though not from the presence of sulphuric acid, as it remains, with the small quantity of urea left behind by the first operation, dissolved in an inferior layer of water. The supernatant ethereal solution is decanted and repeatedly washed with water and alcohol, ether being occasionally added to supply the deficiency caused by evaporation during the above-mentioned process. An acid solution in ether is finally obtained quite free from urea and sulphuric acid, and remarkable for its beautiful pink colour when observed under transmitted light. This solution is decanted for the last time through a filtering funnel, the inferior layer of water being allowed to run out; and the acid ether is then submitted to the slow evaporation at the temperature of the atmosphere. Twelve hours afterwards the remaining liquid is found covered with prismatic colourless needles, which can be collected and dried upon filtering paper; the sides of the vessel are occupied by the deposit of an amorphous pink substance.

"*First Acid.*—The crystalline substance, when examined under the microscope, appears to assume the form of oblique rhombohedra or of prisms derived from that type, aggregating occasionally in stellate groups, but generally branching off from a main crystal or long prism. They transmit readily polarized light. This substance is soluble in ether, alcohol, and boiling water; it imparts to its solution an acid reaction, and can be again obtained crystallized by concentration. When heated upon a platina spatula, the crystals fuse, emitting a peculiar smell different from that of hippuric acid, and after charring without taking fire, finally disappear, leaving no residue. This substance, therefore, is not *hippuric acid*, to which, however, in many respects, it bears great analogy.

"*Second Acid.*—The pink deposit which occurs on the sides of the vessel during the evaporation of the mother liquor, has a very strong acid reaction: after standing for a week, it is found to contain colourless concentric groups of radiating crystals; but the very small quantity obtained did not admit of their minute examination. Robin considers the pink amorphous sediment as *urrosacine*, or the colouring principles of urine obtained by Dr. Harley. This pink substance is soluble in ether and alcohol, but not in water. Its smell is peculiarly aromatic, increasing when exposed to heat on a platina spatula; it chars, emitting an odour of burnt oil, and leaves no appreciable fixed residue. We have not observed whether iron is present."

The second acid, doubtless, consists chiefly of the urine pigment; and to the account given of its extraction, we may add the process described by Dr. Harley, by whom it has been obtained in a pure state, and who has bestowed upon it the name of "*Urrosacine.*"

"A large quantity of urine is evaporated almost to dryness over the water bath; the salts which have crystallised being removed, the colouring matter is extracted by means of boiling alcohol; the alcoholic dark-red extract is boiled, with hydrated lime added in small quantities at a time till the liquid becomes colourless. The whole is then thrown on a filter, and the compound of lime and the colouring matter thoroughly dried and washed with boiling ether, to remove any fatty substance which may be present. The lime compound is again treated with hydrochloric acid to set free the colouring matter, and afterwards with alcohol. The alcoholic solution, mixed with an equal quantity of ether, is allowed to stand for some days, and, water being added, the ether containing the colouring matter floats on the surface and is readily removed. The solution is of a port-wine colour, and still contains a little hydrochloric acid, which is removed by distilled water added to the ether in a filtering funnel stopped by the finger, so that the water at the boiling of the former is easily withdrawn by partially removing the finger. This and the after-distillation leave a pigment, which, when dried, is brownish-black, and presents a glistening appearance. This pigment, on being burnt, evolves an odour similar to burning bone, and leaves an ash which contains iron; it is composed not only of carbon, hydrogen, and oxygen, but also of nitrogen, and is obviously allied to hæmatin, bile pigment, and melanin."

I regret to have been obliged to occupy so much space in detailing the foregoing somewhat full, but at the same time tolerably clear and simple account of the characters and properties of the urine, its composition and analysis. The details into which I have thus entered appeared to me for the most part indispensable; for unless we are fully acquainted with the composition of the urine, and the processes adopted for the detection of the more important constituents present in it under different circumstances, it will be impossible for us to discover the many deviations of composition to which the urine is liable, arising either from functional derangement or disease. —*Lancet, March* 20, *and April* 3, 1858, *pp.* 283, 333.

40.—SUGAR AND DIABETES: A CASE.

By Dr. William Budd, Senior Physician to the Bristol Royal Infirmary.

There are probably few whose attention has been much directed to the subject of diabetes, who have not had misgivings, at one time or another, as to whether the common method of treating this disease by restricting the patient to a purely nitrogenous diet, or, to speak more correctly, to a diet from which sugar and its equivalents are excluded, really fulfils the true indications of the case.

Among the many circumstances that might be referred to suggesting such misgivings, there comes—

1. The strong and direct opposition in which this method very often stands to the natural cravings of the patient—cravings which, if not indulged, become, after a time, so irresistible as to drive the subjects of them to fraud, in default of other means, in order to procure some portion of the proscribed articles.

It has even been laid down as essential to the success of this method, when conducted in hospital, that the patient should be kept in a room to himself, guarded by lock and key for that special purpose, so ineffectual have any less stringent measures been found to bar the diabetic man from the gratification of his desire for saccharine aliments.

The need of such precautions as these is in itself sufficient to raise serious doubts in the minds of any thoughtful practitioner, as to the soundness of the principle on which they are founded. For, although the appetites in disease are often perverted, and are rarely to be unreservedly trusted as guides to practice, yet they are often, as in health, exponents of true wants of the system. In some sense or other, they are very real elements of the case, whatever it may be, and not seldom are much more intimate interpreters of its great cardinal relations than any evidence we may be able to draw from more recondite sources. Their suggestions may require to be modified by the results of experience, or may even be superseded by a higher knowledge; but, in either case, we ought to be very sure of our facts before we venture to act upon them in contravention of strongly declared instincts. In diabetes, it would be difficult to show in either of these quarters sufficient warrant for the little heed which is paid to the natural desires of the patient in the all-important matter of diet. We are certainly very far from having attained on the one hand, to a perfect theory of the disease; and our experience as to diet, on the other, is too one-sided to enable us to found any certain conclusions upon it.

2. Another circumstance that tends very much to weaken faith in what may be called the orthodox plan of treatment is, that this plan is not only of little avail in most cases in long postponing the fatal event, but often signally fails in insuring for any length of time the

specific object for which it is proposed—that, namely, of keeping down the quantity of sugar discharged with the urine.

3. M. Bernard's important discovery, that the liver forms sugar as readily from nitrogenous as from amylaceous compounds, seems to take from this plan the plea of resting upon a scientific basis.

I am aware of all that may be said in reply to these observations, and I also know that they are open to cavil in various ways; but they sufficiently show, notwithstanding, as it appears to me, that the true principles on which the dietetic treatment of diabetes should be conducted are still open to consideration. We shall see how far this view is borne out by evidence of another kind, to be presently adduced.

Many of the points here touched on are illustrated in a very striking way in a paper on 'Diabetes' communicated to the French Academy of Sciences by Prof. Andral, rather more than two years ago, and published soon afterwards in the 'Annales des Sciences Naturelles.' After remarking that a purely animal diet not only fails in a great number of cases permanently to reduce the amount of sugar discharged by the kidney, but that this amount may even go on steadily increasing, in spite of the entire exclusion of saccharine and amylaceous compounds from the food, M. Andral relates the following case in point:—

"One of the most remarkable, and at the same time one of the most conclusive, of facts of this kind, because of the absolute strictness with which the regimen was carried out, is that of a woman who, in the intimate persuasion that an exclusive animal diet could alone cure her, had the courage to subject herself to it during nearly two months, without deviating from it for a single day. During the whole of this time she ate nothing but roast or boiled meat, and drank nothing but water, to which a little alcohol had been added. At the end of the two months, she was obliged to give up this regimen, which had become insupportable to her; and, besides, she was not better. At the moment of commencing this plan, her urine yielded 27 *grammes* of sugar to the pint. During the early trial of it, the proportion of sugar fell by degrees to 20, 15, 12, and at last to as low as 10 *grammes* to the pint; then suddenly, and without the remotest ground for supposing that any breach of rule had occurred, the proportion of sugar voided began again to rise. We now saw it progressively mount from 10 to 15, 20, 30, 44, 49 *grammes* to the pint; and there was, moreover, no single day in which this principle was altogether absent. Further, what is particularly worthy of remark, is that, when we first began to mix eggs, milk, a small quantity of bread, and vegetables, with the meat, and to substitute wine and water for the alcohol and water, the sugar, contrary to all expectation, began to diminish anew, falling to 30, 26, and at length to 10 *grammes* to the pint. Then again, after the lapse of some days, the regimen remaining unchanged, the sugar rose once more, until, at the end of three weeks from the first adoption of this mixed diet, the urine contained 54 *grammes* to the pint."

M. Andral adds, that this is far from being the only instance in which he has seen a large amount of sugar continue to be discharged in the urine in this disease, in spite of a purely animal diet; and he cites, among others, the extreme case of a diabetic patient "who lived entirely on flesh, and whose urine contained, notwithstanding, the enormous quantity of 82 *grammes* of sugar to the pint; and, as this man passed eight pints of urine every twenty-four hours, it follows that he expelled from his system, and consequently produced in the same period of time, as much as 656 *grammes* (or more than 20 ounces) of sugar."

In the case of which it is the principal purpose of this paper to give some account, the same general fact was observed. The amount of sugar voided went on largely and steadily increasing in spite of the rigid observance of a diet from which sugar and amylaceous compounds were excluded. But this case exhibited, in addition, the much more remarkable spectacle of a considerable and permanent reduction in this amount occurring concurrently with the recovery of the patient from a state of wasting and extreme weakness to one of good condition and comparative health, on substituting for this diet a scheme which not only included a large proportion of vegetable food, but *more than half a pound daily of sugar in substance.*

Case. The subject of this case, Joseph Snailum by name, an agricultural labourer, 18 years old, was admitted on March 19th, 1857, into Ward 6 of the Bristol Royal Infirmary, where he still remains under observation. At that time, he had already been fifteen months ill. As in most cases of the kind, his malady had stolen insensibly upon him. Frequent calls to make water, by night and day; an unnatural thirst, together with loss of flesh and gradually increasing weakness, were the first circumstances that excited his attention. He had been unable to work almost from the beginning. Meanwhile, these complaints had gone on gradually increasing. For some time before he fell ill, he had been working in wet and marshy ground; but, apart from this, he could assign no distinct cause for his failing health. His immediate relatives appear to have been healthy people.

On admission, his state was very characteristic. A peculiarly dry and harsh skin, a brown and dry tongue, ardent thirst, and a voracious appetite, were the leading symptoms. The pulse was only 68 in the minute. He was much reduced in flesh and strength. For the first week, the quantity of urine passed varied from nine to twelve and a half pints; its specific gravity, from 1039 to 1042. The presence of sugar in the urine was ascertained by the copper test, and by the extraction of sugar in bulk from the secretion. Within a few days after his admission, he was put on a diet consisting entirely of meat, eggs, a carefully prepared diabetic bread, a small quantity of butter, and a few ounces of wine. Under this regimen, contrarily to what usually happens, the diabetic symptoms began to grow worse almost from the first. The quantity of urine passed rose, in the course of a week, from

nine to seventeen pints, its specific gravity remaining much the same. The patient's thirst increased, and he became daily thinner and weaker. At the end of that time, an attack of diarrhœa occurred, which lasted, with more or less severity, very nearly ten days. During that interval, he took very little food, and the precise amount of urine passed could not be estimated. When the bowels had become settled, he was found to be voiding from seven to ten pints of urine *per diem*, of specific gravity ranging from 1036 to 1044.

On March 31st, the stomach rebelled so much against the diabetic bread, that six ounces of common bread were allowed in place of it; and these six ounces were soon afterwards raised to sixteen. His health now began to improve somewhat, and he gained a little in flesh and strength. The diabetic symptoms proper remained much as before.

This improvement, however, was not of long continuance. In the beginning of May, he had grown so weak as to be obliged to keep his bed, and I had become very anxious about him. His tongue was very dry and brown; his pulse had become frequent; and he was much harassed by cough and pain in the chest. He seemed, in fact, to be rapidly entering upon the downward course which leads to the fatal event so common in such cases.

Many considerations which I have not now time to detail, but some of which have already been hinted at, had long made me desirous of trying what would be the effect of freely giving sugar in such circumstances.* I was turning the matter in my mind, when I accidentally saw it stated in the 'Gazette Médicale' that M. Piorry had already tried this measure in one case with very marked success. I, therefore, on May 22nd, entirely reversed my plan of treatment, and ordered the patient to be put on a varied and generous diet, with the addition of 8 ounces of sugar candy and 4 ounces of treacle daily. This change had very little effect at first either on the quantity of urine passed or on its specific gravity. It is worthy of remark, however, that what little there was was in both respects on the side of diminution. But the effect on the general health was marked and immediate. The new articles of diet were taken with great relish, and the patient improved in health and strength from day to day. What is especially worthy of attention is, that, as he became stronger, the diabetic symptoms also gradually lessened—to such a point, indeed, that on July 22nd, exactly two months after the adoption of the new scheme, only three pints of urne, of specific gravity 1032, were passed in the twenty-four hours; and yet, at this very time, the patient was taking, in addition to much vegetable food, as much *as eight ounces of sugar and six of honey daily*; the honey having been substituted, at his own desire,

* This idea was first suggested to me by my colleague, Mr. Prichard, on the simple ground of supplying to the system the particular article which is running to waste, and the loss of which appears to be the principal cause of the damage sustained by the constitution as the disease advances.

for the treacle previously given. Since that time, the quantity of urine passed has somewhat risen, its present daily average being from four to five pints, of specific gravity varying from 1032 to 1034. In other respects, his state is very satisfactory. He is ruddy, looks in very good condition, and declares himself to be strong and well. His tongue is moist; he no longer suffers from thirst; and his skin, from being dry and harsh in the extreme, has become soft and natural. He has increased in weight from 107lbs., which was what he weighed shortly before beginning the sugar treatment, to 126½ lbs.

P.S. I have purposely abstained from burdening this narrative by any lengthened comments. There are few maxims in philosophy which are entitled to more respect than that which inculcates caution in drawing deductions from single instances. The striking result here obtained from this new mode of treating diabetes must not only be repeated in other cases of the same kind, but must be sustained for a longer period in this one, before any general inferences can be safely founded upon it. It will be observed, that the effect of the treatment was to palliate only, and not to cure. The patient is still diabetic, and may still, for all I know, die, as so many have done before him, of the disease under which he is labouring. But even although it does not go beyond palliation, I have thought the result sufficiently important to deserve being placed on record. That a diabetic man should not only recover his health by eating sugar, but that his diabetic symptoms should also very nearly vanish under the same treatment, is a fact that stands in startling antagonism to all present views, as well as to all prior experience on the subject. If this result should be found to be general, it will not only lead to an entire revolution in the treatment of the disorder, but will help in no mean degree to clear up much that is still obscure in its pathology.—*Brit. Med. Journal, Nov.* 14, 1857, *p.* 943.

41.—DIABETES TREATED BY SACCHARINE FOOD.

By Dr. George Corfe, Berners Street, London.

In the postscript to a paper lately read before the Bath and Bristol Branch on Diabetes, by Dr. W. Budd, the following judicious remark is made by that gentleman:—"There are few maxims in philosophy which are entitled to more respect, than that which inculcates caution in drawing deductions from single instances." In the spirit of that suggestion I beg leave to communicate the following particulars to the profession:—

When I perused the details of the case which forms the subject of Dr. Budd's paper, I felt satisfied that the views inculcated were based on a safe principle, and that they were not "meteoric, although they came upon Dr. T. Williams "with convulsive and startling effect," which seems to have been communicated to his two diabetic patients, on whom Dr. Williams made a short trial of the saccharine treatment.

The following case was under my care at the period when Dr. Budd's remarks were published, Nov. 14th, 1857 :—

A tradesman in an adjoining county, aged 40, married, with seven children, tall, dark, and spare, with black eyes and hair, and a tawny skin, evincing the true phosphatic diathesis, complained, October 1st, 1857, of weakness in knees, dryness of the throat and tongue, which was covered with a dirty fur, and so clammy that he was unable to eat solids; also of thirst, with emaciation, and frequent desire to pass urine. These symptoms had been creeping on him five or six weeks, prior to which period he had enjoyed excellent health. On desiring him to pass some urine, it was ascertained to be loaded with sugar, was amber-coloured, and of specific gravity 1042. There was unequivocal evidence of solidification of the apex of the upper lobe of the right lung. The patient had lost one brother, at the age of 25, with tuberculosis, and a sister, aged 40, with diabetes. His father died at 75, and his mother is still living, aged 85. The patient is the youngest of eight children.

He was immediately put under the following treatment :—

℞. Creasoti ♏ iv. mist. acac. ℥ss; aquæ carui ℥i. M. Fiat haustus ter in die sumendus.

In addition to the above, he was directed to take a table-spoonful of cod-liver oil in milk, after each meal. The usual diabetic diet, consisting of underdone meat, greens, eggs, milk, and bran biscuits, was prescribed, together with a total abstinence from saccharine, farinaceous, and amylaceous substances.

The urine voided averaged five pints in twenty-four hours. I was enabled to test the urine of six of the children, and found them all free from sugar except in one, a boy, 5½ years old, where the quantity was small, but marked by the usual tests.

From this period to December 1st (two months), the patient became more or less dispirited at the manifest downward course the disease was assuming. The urine gradually increased in quantity, and the specific gravity ranged from 46 to 52, his vigour was fast waning, the disease assumed a most formidable character and threatened to cut short his life in a few weeks. By the aid of polarized light Professor Heisch ascertained that the urine at this period contained 100.28 grains of sugar in 1000 parts, or less than two ounces in each pint. I observed, that in the most successful cases related by Dr. Bouchardat, his treatment allowed grape sugar, in the form of sweet fruits, although he forbade cane sugar, as well as starch and farina. (Un Memoire sur le Diabète sucrè ou Glucosurie, par Dr. A. Bouchardat. Paris, 1846.)

This physiologist asserts that the pancreatic juice contains the principle analogous to distase, by which it converts starchy substances into dextrine and glucose, and thereby allows their absorption into the animal economy. He insists on the following points deduced from a series of experiments :—

1st. That substances containing proteine, gelatine, &c., are digested in the stomach more especially; that these substances, when dissolved, are immediately absorbed by this organ, and from thence passed into the blood. Dr. Bouchardat designates this process *the stomachic digestion.*

2nd. Fatty substances, softened by animal heat, rendered milky or emulsified *(emulsionnée)*, through contact with bile. are absorbed in the intestines by the lacteals: this he terms *the intestinal digestion.*

The solution of fecula is obtained by a principle which acts on it as diastase, and which is chiefly secreted by the pancreas; this solution first begins in the stomach, but is specially accomplished in the intestines; and the liquid which is the produce of this solution is absorbed, not by the lactiferous tubes. but partly by the vessels of the stomach, and in a much greater degree by the minute intestinal branches of the rudimentary portal vein. This Dr. Bouchardat designates *mixed digestion.* He is the first physician who proposed the moderate use of saccharine substances in diabetes; as apples, pears, cherries, gooseberries, raspberries, strawberries, raisins, and ananas. He assures us, that if we withhold amylaceous and farinaceous food from patients suffering from glucosuria, and substitute bread made from gluten, according to his formula (p. 311), the glucose formation subsides. ('Supplement à l' Annuaire de Thérapeutique' pour 1846, par le Dr. Bouchardat.)

These views, which were first put forth in 1841, are not quite in accordance with M. Bernard's recent discoveries on the property of the liver to convert fat into sugar, and the power of forming it as readily from fat as from starch-granules; such a view, as Dr. Budd remarks, takes from the present orthodox treatment of diabetes by nitrogenous substances, the plea of resting upon a scientific basis. In our present state of ignorance of the specific action of various agents employed in the assimilation of food, such as saliva, bile, pancreatic and intestinal fluids, we must be content to draw our inferences, in the treatment of the disease, from well authenticated facts in practice, rather than allow our minds to be warped by theoretic views deduced from our imperfect knowledge of the physiology of organs engaged in the digestive process.

To return, however, to the details of the above case. The weight of the patient at this stage was only 114 pounds, and as the symptoms were assuming every day a more dismal character, I resolved on changing the whole line of treatment as follows. He was now directed to take, zinci sulph. gr. ij.; cinchoninæ sulph. gr. i.; extracti lupuli, gr. ij. in form of pill, with each meal in lieu of the creasote mixture, and to continue the cod oil. He was desired to use the following articles of diet:—Fat mutton and beef, and the same meats in the form of soups; fresh white fish, boiled; oysters, poultry, game, tripe, and any one of the following vegetables, daily; parsnips, turnips,

carrots, spinach, greens, brocoli, endive, lettuce, celery, and to abstain from bread and all farinaceous food and potatoes. His drink was directed to consist of a cup of coffee, with half an ounce of candy sugar, in the morning; a tablespoonful of rum in a glass of water, with the same quantity of sugar candy and five grains of carbonate of ammonia, at luncheon, and two glasses of claret at dinner. In the evening he was desired to take one ounce of honey on bread in lieu of butter, and to sup on boiled milk, with an egg, &c.

After having continued this line of treatment from Dec. 17th to the 30th, the following results were obtained:—The urine increased from four to eight pints in twenty-four hours, the specific gravity was 1050, it gave proof of containing, by polarised light, 112 grains in 1000 pints, or rather more than two ounces in each pint, and yet he had not lost in weight more than one pound. It should be here remarked, that he frankly acknowledged that he had not followed the directions of treatment in so strict a manner as he could have wished: for although he felt stronger and more lively in mind, he had been to several festive parties, and had eaten freely of potatoes and bread on several occasions, and had drank beer or bottled stout. But after being reprimanded severely for his indiscretion, he faithfully adhered to the prescribed form of dietary. The pills were now increased one grain of each of the sulphates in strength, and on the 17th of January the urine had a specific gravity of 1038, containing 83 grains in 1000 of sugar, that is, a diminution of more than a quarter of an ounce in each pint of fluid, and for eight days prior to this report the quantity never exceeded four pints in twenty-four hours. I shall here add the testimony of the patient.

"Jan. 16th, 1858.—My dear Sir. With this you will receive my report. I have not fully complied in abstaining from bread, but the portion I have taken has been but small; when I have eaten it, I have previously toasted it. My strength I now find daily increasing. At first the pills made me feel very poorly, but they check thirst, reduce the quantity of urine, &c. I have just been in the scales, and I find I weigh 119 pounds.

"P.S. I took some Scotch oatmeal one or two nights. Is that wrong?"

It was obvious from such a report and the analysis, that the disease was not aggravated by the present treatment, and I therefore begged of him to abstain wholly from all farinaceous food, including bread, until the next report, which has been forwarded to me this day, January 29th, and which I transcribe.

"My dear Sir,—Enclosed you will receive my report, which I think will speak for itself. I can now reverse my tale, and say, 'The bones which were once seen are now hidden from sight;' I am, of course, with this increase of flesh much stronger. I feel some little difficulty in walking up stairs, but not to the extent I formerly did by any means; I get a free perspiration, my appetite is good, and the

cramps are quite gone. When I meet any one whom I have not seen for eight or nine days, they want to know if my face is not swelled: my clothes, which hung about me as though not belonging to me, I am obliged to alter in the buttons. I have found a good substitute for bread in parsnips. The fat ham had the desired effect on my bowels; of course, it checked my progress in weight, which has gradually risen thus:—

	Weight. lbs.	Urine. Pints.	Fluids taken. Pints.
1858. Jan. 15	120	5	5
„ 18	121	4½	4½
„ 21	124	3	3
„ 25	129½	2½	3
„ 28	132	3¼	3½

"I can now attend to business comfortably; I can walk four miles an hour well. Perspired freely last night in bed, and exertion to-day induces a moisture also."

The report gives a daily account of the quantity of fluid taken and the amount of urine voided; they are here set down by way of contrast with the increase of weight.

The analysis of the urine this day confirms the foregoing remarks on the positive improvement in health. Instead of presenting its usual amber-coloured clear character, it is now muddy, and deposits some lithates. The muddiness is removed by heat. It is acid, and of specific gravity 1032, and is found to contain only twenty grains per 1000 of sugar; indeed, the indications are now so faint, Mr. Heisch observes, that it is not easy to define the precise quantity, as before, by means of polarised light.

I refrain from any comment on the above facts, which are quite unprecedented in the treatment of this intractable disease. Upon a review of upwards of one hundred cases of diabetes, it has never fallen to my lot to witness such a marked, rapid, and satisfactory improvement, by any line of treatment, as that now under consideration.—*British Medical Journal, Feb.* 6, 1858, *p.* 102.

42—*Employment of Sugar in the Dyscrasia attending Bronzed Skin.*—Dr. Todd, in a case of bronzing of the skin, now under his treatment in King's College Hospital, has ordered the free dietetic employment of sugar. The patient, a woman, is believed to have derived considerable benefit from it in relief to the malaise and debility from which she suffered. The theory of the treatment is, we believe, based on the belief, founded on analysis of the blood, that the sugar-making function of the liver is interfered with by the disease. The suggestion is certainly well worth a trial, since the treatment can at any rate do no injury.—*Med. Times and Gazette, Jan.* 23, 1858, *p.* 89.

43.—ON THE MODE OF DETECTING SUGAR IN THE URINE, AND ON THE DIFFERENT NATURE OF CERTAIN FORMS OF DIABETES.

Dr. A. BECQUEREL, Physician at the Hospital of La Pitie, and Professor "Agrège" to the Faculty of Medicine of Paris, has recently submitted a notice on this subject to the Medical Society of the hospitals there.

In this communication he says, "Five years ago, in my 'Treatise on Pathological Anatomy,' and four years ago, at the hospital of Laribosière, in a series of lectures reported in the 'Moniteur des Hôpitaux,' I pointed out the following facts:—First, that nearly all urines become discoloured, impart a green colour to, and even precipitate the cupro-potass solution of Barreswill, or that of Frommerz, if heated with these re-agents. Second, that a great number of these same urines become brown, in like manner, on the addition of caustic potass, however pure that may be.

"Nearly a year ago, in a new series of lectures delivered at the hospital of La Pitie, I again strongly insisted on the erroneous conclusions to which the reaction afforded by these tests might lead; an opinion which was merely that prevailing among chemists who had paid attention to this subject at the time. I shall content myself here by showing you that nothing is more easy than to avoid this source of error, and that there is at our disposal a much more sure, expeditious, and certain method of detecting the presence of sugar in the urine than is usually employed.

"We take a certain determinate quantity of urine, say 60 grs.; this we treat with a small quantity of solid and crystallized acetate of lead, say 4 grs.; on heating this mixture, there is immediately formed a copious precipitate of a dirty white colour; the liquor is then to be filtered, and the solution treated by sulphate of soda in excess. If, for example, we have added four grs. of acetate of lead, we add 8 grs. of sulphate of soda. This being done, the mixture is again heated, and sulphate of lead is deposited; we then filter once more, and there is afforded a clear transparent liquid, which contains the sugar, when there is any, and some unimportant salts. The liquid thus obtained is neither acted on by the cupro-potass re-agents, nor browned by the caustic potass, *unless* sugar is present. These two re-agents are in this way perfectly reliable, very accurate, and afford no results when no sugar is contained.

"Should the urine under examination contain albumen, it is immediately coagulated by the acetate of lead at the same time as other organic matters, and gives no further trouble.

"Thus, in all cases where it is desired to ascertain the existence of sugar in the urine, whether along with albumen or not, we possess two excellent re-agents in the cupro-potass solution, and in the caustic potass itself; only we require, in the first place, to treat the urine

with the acetate of lead and the sulphate of soda, by which means we get rid of all such matters as decompose or discolour the cupro-potass or caustic potass tests.

"Since January 1855 up to the present time, the urine of all the patients under my care—and these have amounted to nearly 2000—has been examined according to the above method. But besides this, in all cases where the presence of sugar was determined, there was also an examination made by means of the polarimeter, in order to discover the precise quantity of that principle contained in every thousand grains of urine. These numerous cases have afforded some curious results which I would desire to lay before the Society.

"Two species of diabetes appear to exist, viz., idiopathic diabetes, or diabetes properly so called, and symptomatic diabetes. With reference to diabetes properly so called, I have here nothing to say;—it is a disease special in its causes, and having an origin, a progress, and a termination altogether peculiar to itself. That to which I at present allude is a disease of a somewhat different nature, viz., symptomatic diabetes. By this name I would refer to a certain number of cases in which the presence of sugar in the urine constitutes an accessory or supervening symptom. This is a symptom which, like albuminuria, is common to very different diseases, and one which would never be suspected unless the urine were submitted to examination.

"The charators of symptomatic diabetes are as follows:—

"1st. The quantity of sugar contained in the urine is never very great, although I have frequently found as much as 25 or 26 grs. in 1000, which is a pretty considerable proportion, but less than exists in idiopathic diabetes, where it often reaches as high as 40, 50, 60, and even 80 grs. in 1000.

"2nd. The urine is very little or never increased in quantity.

"3rd. Although the density of the urine is no doubt increased, yet it is only to a very slight extent.

"4th. The sugar does not alter the other chemical elements contained in the urine.

"5th. There are no phenomena present attributable to the fact of sugar being contained in the urine; there is neither the increase of appetite, nor the immoderate thirst of idiopathic diabetes.

"Symptomatic diabetes shows itself occasionally in diseases of the brain and spinal cord, of the liver, of the digestive apparatus; in disease connected with parturition and lactation; and in other affections of various descriptions."—*L'Union Médicale.—Edin. Med. Journal, Nov.* 1857, *p.* 460.

41.—THE GLUCOMETER.

This is an instrument introduced by Dr. Garrod for determining the amount of sugar in diabetic urine. The principle upon which the glucometer is constructed rests upon the fact that glucose sugar

($C_{12}\ H_{14}\ O_{14}$) when boiled with carbonate of potash gives rise to an amber colour, the depth of the tint depending upon the amount of sugar present. The apparatus consists of a standard, a graduated tube of the same calibre as the standard, and an accurately divided minim measure. The standard contains a solution having the exact tint produced by half a grain of diabetic sugar to the fluid ounce : it should be kept from the light when not in actual use.

Method of employing the Glucometer.—1. *Qualitative Analysis.*—Put into a test-tube a small quantity of the urine, and add about an equal bulk of liquor potassæ, Ph. Lond.; heat over a spirit-lamp, and allow the fluid to boil for half a minute. By this operation (Moore's test) we ascertain whether sugar is present; and, by observing the amount of colour, have a guide to the subsequent dilution of the urine, which is often necessary before proceeding with the quantitative analysis, in order to avoid having the graduated tube of inconvenient length.

2. *Quantitative Analysis.*—If the tint in the above experiment be not deeper than an amber red, no dilution will be required before it is examined; if of a dark red, the urine should have about its own bulk of water added to it; if of a reddish brown, three times its bulk; if of a dark brown, seven times, &c. This dilution may be readily effected by means of the graduated tubes, employing about a drachm of the urine for the experiment. Having made the necessary dilution with distilled water, accurately measure in the minim-glass half a drachm (30 minims) of the liquid, and add an equal amount of the solution of carbonate of potash, introduce these into a small flask or large test-tube, and wash out the measure with about a drachm-and-a-half of water. Heat to the boiling point, by means of a spirit-lamp, and keep the liquid at that temperature for five minutes. If the contents of the flask be found to have a colour much above that of the standard, water may be added; and when somewhat cool, the whole transferred to the graduated tube, and dilution carefully made until the tint exactly accords with that of the standard. Care should be taken, on each addition of water, to ensure a thorough admixture of the fluid in the tube. All the required data for determining the amount of sugar are now obtained. Suppose a sample of urine when treated with liquor potassæ to give an orange-red colour, and that it has afterwards been increased to four times its original bulk by the addition of three parts of water; again, suppose that the half-drachm employed in the quantitative analysis requires to be further diluted, so as to occupy 6½ drachms before the exact tint of the standard is obtained; such urine would contain 26 grains of sugar per fluid ounce; for the first dilution increases the bulk fourfold, the second 13: therefore four times thirteen, or 52 half-grains, or 26 grains of sugar are present. If a portion of the 24 hours' urine is made use of, and the total quantity measured, the daily elimination of sugar can be readily determined. The method of ascertaining whether the tint of the liquid corresponds

exactly with that of the standard, is to hold the tubes side by side, directing them to moderately bright light, such as that of a white cloud, sometimes a thin piece of writing-paper placed behind the tubes enables the identity of tint to be better observed. Lamp or gas light is not well adapted for the experiment. Should the urine contain but very little sugar, some slight alteration in the process may be made. One or two drachms may be heated with but a small quantity of the solution of carbonate of potash, and without the employment of more water than is sufficient to wash out the measure; when the amount of sugar is less than half a grain to the ounce, the glucometer can only give approximate results. The apparatus had been constructed for Dr. Garrod by Messrs. Coxeter.—*Medical Times and Gazette, Dec.* 12, 1857, *p.* 621.

SURGERY.

AFFECTIONS OF THE BONES, JOINTS, &c., WITH VARIOUS CAPITAL OPERATIONS ON THE LIMBS.

45.—ON THE PATHOLOGY OF ARTICULAR CARTILAGES.

By Thos. Bryant, Esq., Assistant Surgeon to Guy's Hospital.

Upon inquiring into the pathology of diseased joints, the unsatisfactory information respecting the diseases of articular cartilages as a whole, has urged me to investigate their pathology; and fully appreciating the labours of my predecessors, I can now, with some confidence, describe the various morbid changes to which this structure is liable. And believing that the conclusions formed with much care may, perhaps, prove of benefit to others, I have been tempted to compress them into the following pages.

Articular cartilages, standing as they do upon the confines of the two anatomical divisions of tissues, hard and soft, offer to the anatomist an unusually good opportunity of examining the process of cell-development, and afford equally to the pathologist the means of studying the changes which nucleated cells undergo in their degeneration or decay.

The difference between what are called vascular and non-vascular tissues, (to which latter division articular cartilages belong), is now known to be so slight, that the method by which this structure is nourished is no longer doubtful. The blood being conducted by its ordinary vessels to every tissue, each tissue extracts, or rather imbibes, the materials requisite for its nourishment. The only difference between the vascular and non-vascular parts being determined by the spaces through which this process of imbibition takes place, (the vessels in the latter not perforating its substance.) The nucleated cells, however, through which all structures are formed, and grow, still absorb from the vessels, however distant, their quantum of nourishment; and in articular cartilages these cells are as active as in any other tissue.

The method by which these blood-vessels supply the articular cartilages may be thus briefly described, the necessity to understand their vascular supply being evident when their pathology is discussed.

That the principal source is derived through their bony attachment, the investigations of Birkett, Toynbee, and others, have well demonstrated. The vessels at their bony base form loops, and yield the required nourishment "somewhat in the same manner as the epidermis scales are 'nourished' upon the vascular loops of the corium." The vessels ramifying in the synovial membrane, and at their circumference, furnish to their adjacent surfaces a sufficient supply.

It is clear, then, that structures deriving nourisment through other although adjacent tissues, must depend much upon the integrity of *these* tissues: and that if any disturbing cause should arise to prevent or arrest their powers of nutrition, the same, if not increased, perversion of nutrition must ensue in the tissues thus secondarily supplied. In the cartilages of joints such a result may be most admirably witnessed.

The *Diseases* to which articular cartilages are liable may be thus classed. Like other tissues they may *hypertrophy*, or *atrophy*, using the latter in its simplest sense. Inflame and ulcerate they cannot, as the presence of vessels in the tissue is generally considered necessary for such processes. But to *granular*, *fatty*, and *fibrous* degeneration they are peculiarly liable, and in these forms of degeneration, may be included the processes which have been so variously described by different authors.

Hypertrophy of articular cartilage.—That hypertrophy may exist, under the same circumstances that generally induce such a result in other tissues, cannot be denied; that is, in cases where an unusual quantity of blood, or liquor sanguinis, is supplied to the tissue; or when the functions of the part are called into unusual exercise. Whether such has occurred in articular cartilage I am not prepared to state; it has not fallen to my lot to witness a single instance, and I know of no genuine case where such existence was demonstrated. Cases are reported where the cartilage was found much thicker than natural, but, in all, some disease of the joint or neighbouring parts was present; and it may be questioned whether such thickening was not the result of softening and mere swelling of the tissue, or other pathological change. In many instances I have observed cartilages which to the eye appeared healthy; but on careful examination by the microscope and otherwise, degenerative changes were detected.

That hypertrophy from simple excess of function should occur seems almost impossible, as the mind can hardly conceive a position in which such a demand should be required.

That excess of vascular supply should also induce this result the same doubt must naturally arise, as in cases where such supply is present the neighbouring synovial or bony structure must necessarily be involved; and as congestion of these parts can hardly exist without some perversion of nutrition of the tissues themselves, the cartilage, nourished only through these tissues, must necessarily suffer, and as a consequence any *other* change than hypertrophy is likely to result. However,

it must be remembered that great authorities have stated that simple hypertrophy may exist, although they fail to give us undoubted instances of its presence; at any rate it may be confidently affirmed that such a condition is remarkably rare.

Atrophy of articular cartilage.—That cartilages atrophy, daily experience gives positive evidence, confining the meaning of the word to simple wasting. In old people it is one of the many signs of natural decay; and in middle age it may occur when any of the requirements for healthy nutrition are defective.

The process, as in all natural atrophies, is of a slow character; the cartilage becomes thinner by degrees, but retains all the characters of healthy structure; the thinning is also in most cases general, but in younger subjects particular parts may suffer only.

In some instances the whole cartilage may entirely disappear, exposing the surfaces of the bone, which is then altered in character; for remembering the source of its vascular supply, the same defect of nutrition must affect equally the cartilage and the bony lamella, to which it is normally connected. This bony surface then becomes degenerate, but it assumes the form of calcareous degeneration, to which it is the most liable.—*Lancet, Oct.* 31, 1857, *p.* 441.

46.—CASES OF EXCISION OF THE ELBOW-JOINT BY THE LONGITUDINAL INCISION.

Under the care of Prof. FERGUSSON, King's College Hospital.

The operation of excision of the elbow is one of constant occurrence, and with results almost invariably satisfactory, in so far as saving the life of the patient and the possession of a useful arm, with good motion. This last condition cannot always be obtained, unless the joint is freely removed: we mean by this expression, that the surgeon need not fear taking away from the elbow more than mere slices of the ends of the bones, because anchylosis is not sought for; it is motion and flexibility that are required.

We record three instances of excision of the elbow, in King's College Hospital, in which a new form of splint, invented by Mr. Christopher Heath, has been used with marked benefit, in effecting *motion* after the process of healing was nearly completed. After all, this is really the important desideratum of the operation; for a stiff arm is a useless appendage, and to obtain a flexible elbow, containing no joint, great attention must be paid to *early* passive motion. Mr. Heath's instrument seems to prevent the bones coming into close contact, and yet permits of flexion and extension, and is now in general use in this hospital.

The notes of the three following cases were kindly furnished to us by Mr. W. P. Swain, house-surgeon to the hospital:—

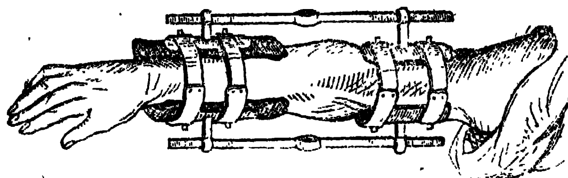
Case 1.—Margaret W——, aged twenty-one, admitted into No. 3

ward, May 9th, 1857, with disease of the right elbow-joint. The patient is a native of Maidstone, where she had been in service; has never been very strong; and about twelve months ago had a glandular abscess in the neck, which is still open. About six months ago, without any previous injury, the right elbow began to swell, and became so painful that she was unable to move the joint. Fomentations and liniments were used without any relief. The joint became more tender, and, in the month of April, an abscess burst a little below the external condyle of the humerus, where an ulcer still remains. The arm continuing swollen and immovable, she was advised to come to King's College Hospital. On admission: she is a pale, delicate-looking young woman. On the neck are the scars of some scrofulous ulcers; there is considerable enlargement of the right elbow; the arm is bent at a very oblique angle, and requires to be supported; there is some slight movement in the joint; the ulna can be pushed up against the humerus, and slightly moved from side to side. About two inches below the outer condyle of the humerus is a small ulcer, the size of a fourpenny-piece, which discharges a serous looking fluid; the skin covering the joint is red and shining. She complains of considerable pain in the joint, aggravated by movement.

May 13th. Mr. Fergusson detected fluctuation above the inner condyle, and made a puncture which gave exit to an ounce of pus.

16th. The patient being placed under the influence of chloroform, Mr. Fergusson proceeded to excise the joint. He made a single longitudinal incision at the back of the joint, about four inches in length, and then dissecting back the integuments on either side, he was enabled to remove the olecranon and articular surface of the ulna by means of the saw and cutting forceps. He then proceeded to remove about an inch of the end of the humerus with the saw, steadying the bone by the use of the lion forceps. The end of the radius was then removed, and the wound brought together with four sutures. Little bleeding occurred. In the evening, the elbow being extended, and the forearm placed in a position midway between pronation and supination, a bandage was placed above and below the wound, and a splint, contrived by Mr. Christopher Heath, the late house-surgeon, was applied, the principle of which is to make extension between the cut surfaces of bone, it being possible at the same time to flex and extend the arm so as to lead to the formation of a movable joint. The accompanying engraving (from a Photograph by Mr. Mason, of King's College Hospital), represents the apparatus as applied to the patient's arm. It consists of four iron plates (well padded) with projecting portions, each of which is perforated by a female screw. Two iron rods, with hinges in their centres, and a male screw at each extremity, work in the projecting eyes, and the screws at the two ends being cut in opposite directions, the hinge necessarily remains central, while the plates may be separated to any extent. The arm having been bandaged above and below the wound, the plates are attached firmly by

means of straps and buckles, (additional strips of plaster being used if necessary), when, by turning the iron rods, the extremities of the bones are separated to the required distance, while by means of the hinges in the centres of the rods, motion can be made with the greatest facility :—



By means of this splint, the arm was kept in position, and flexed daily. On the 23rd the splint was re-adjusted, and the wound reported healthy.

On June 15th the patient is reported as being in much better health. The wound was granulating healthily, and she was beginning to obtain some power of flexion and extension. The splint was now entirely left off.

On Aug. 5th the patient was discharged, with the wound quite healed, and possessing some little power over the limb.

A few days ago the patient presented herself at the hospital. Her general appearance was much improved, and she has now almost perfect power of flexion, extension, and rotation.

Case 2.—Jane P——, aged fourteen, a slight girl, with florid complexion, was admitted on the 16th of June, 1857, with disease of the left elbow-joint. When a month old, abscesses formed in the neck and both elbow-joints; that in the right subsided, and perfect motion was obtained after a short period; but the abscess in the left joint led to complete anchylosis. The joint remained in a quiescent state up to five years ago, when an abscess formed in its neighbourhood; this, however, subsided, and she experienced no inconvenience until a month before admission, when another abscess formed on the inner side of the joint, which burst, and has continued to discharge ever since. The forearm is slightly flexed on the humerus; the elbow is perfectly locked, very tender, and slightly enlarged. Just over the internal condyle there is an ulcer about the size of a sixpence, through which a probe can be passed down to the bare bone. On the posterior surface of the joint, and on the outer side of the forearm, there are old cicatrices.

June 27th. Dr. Snow having administered amylene, Mr. Fergusson proceeded to excise the joint. Having made a vertical incision about six inches long at the back of the joint, he dissected back the integuments on either side, until the joint was fully exposed. During this dissection no ulnar nerve could be discovered. He then applied the

saw to the olecranon at its junction with the shaft of the ulna, and having sawn through the bone in that position, the saw was again applied to the humerus just above the condyles, and the piece of bone intervening between the two cuts removed. At this stage of the proceedings a large quantity of pus spurted out with great force from the neighbouring joint. Some diseased tissues, implicated in the abscess, were then dissected off. No ligatures were required, and the edges of the wound were brought together by two stitches.

30th. The patient having gone on very well during the intervening days, the arm was placed in Mr. Heath's splint (before described), and flexed once or twice upon the humerus. The bones were kept well apart from one another; but after a time the arm and hand became rather swollen, and

On July 3rd the splint was taken off, and the arm placed on a straight splint.

On the 7th, Heath's splint was again applied and the arm now and then flexed, the extension caused by the splint much lessening the pain of that operation. The wound assumed a healthy appearance, and the patient was in a very satisfactory state.

On the 20th, the wound was reported as "looking very healthy," and at each dressing the arm was flexed and extended, not much pain being inflicted.

At the beginning of August the side spints were taken off, and a straight splint in front of the joint was substituted. The wound now scarcely discharged at all. The arm was flexed, extended, and rotated at each dressing. By the middle of the month the patient had regained some power of motion in the fingers and wrist.

On the 25th August the splint was left off, and the arm was supported in a sling.

About the second week in September, when she left the hospital, the wound had almost closed. There was plenty of motion in the joint, and she could raise the hand to the head.

Case 3.—Wm. R——, aged twenty-six, a florid, robust-looking man, was admitted on August 19th, 1857, with disease of the right elbow-joint. The patient states that up to about six years ago he had always enjoyed good health. About that time he contracted syphilis for which he was mercurialized. This was followed by an eruption, accompanied by pain in the limbs and joints, more especially the right elbow and knee. Shortly after he found that his right elbow was swollen and painful. This in about three months yielded to treatment, but he was never able to place the limb in a perfectly straight position, nor could he flex it sufficiently to touch the shoulder without great pain. In May last he had a return of the pain and swelling in the joint. This continued unabated up to about five weeks ago, when an abscess formed in the joint.

On admission, the swelling was considerable about the elbow, and the conteur of the joint entirely lost. The forearm was slightly flexed on

the upper arm, and on pressing the forearm upwards a peculiar elastic feeling was given.

Aug. 20th. An incision was made midway between the condyles of the humerus, and a considerable amount of offensive matter discharged itself. A probe introduced through the wound passes readily into the joint.

30th. The patient being placed under the influence of chloroform, Mr. Fergusson proceeded to excise the joint. As in the other cases, this was accomplished by making the vertical incision at the back of the joint. The ulnar nerve being carefully hooked back and secured from injury, the humerus was sawn through just above the condyles, and the olecranon and the head of the radius were also removed. Much bleeding occurred during the operation.

Sept. 1. Heath's splint was put on, and sufficient extension made with it to separate the ends of the bones. The wound looks healthy, and the patient suffers little pain.

7th. The arm was bent for the first time, and caused very little pain.

10th. The splint was removed to allow the swelling to decrease.

20th. The splint was left off entirely, as it was thought that the effect it had had in keeping the bones asunder was sufficient to secure perfect motion in the joint. The patient can flex the arm a little himself, and with slight assistance can raise his hand to his mouth The wound is looking very healthy, having closed up to a great extent in a surprisingly short period of time. The patient's health is much improved, and a most favourable result is expected.—*Lancet, Nov.* 28, 1857, *p.* 546.

47.—ON EXTENSION OF CONTRACTED KNEE-JOINT.

By Holmes Coote, Esq., Assistant Surgeon to St. Bartholomew's Hospital, &c.

[The knee-joint differs from that of the elbow in the readiness with which partial dislocations occur in every form of severe disease where parts have got into a quiet state, so that attempts may be made to bring the limb straight. Two distinct objects have to be attained, viz.:—]

1. The elongation, or rupture, of those structures which hold the bones in their abnormal position.

2. The readjustment of the bones to their proper bearing; in other words, the reduction of the luxation.

Let us first inquire into the condition of a limb in which the knee-joint has long been the seat of disease. In almost every case the tibia and fibula are drawn dackwards by the hamstring muscles, with a strong direction outwards, due to the preponderating action of the biceps flexor cruris, the tendon of which is usually much more tense than those of the inner hamstring muscles. Upon the removal of the

integument from such a limb, we find the tendons of natural colour and appearance, but the muscles pale, and adherent to surrounding parts, or imbedded in a quantity of effused fibrine or serum. The internal lateral ligament is usually softened, spread out, and much changed from its natural structure; the external lateral ligament is softened and elongated, but entire. The anterior crucial ligament (which extends from the outer condyle of the femur obliquely inwards to the tibia, and has for its function to control or limit the rotation of the leg *outwards* in the flexed position) is usually very much softened and elongated, but entire; in other cases it has given way. The posterior crucial ligament is less subject to change. The synovial membrane, after passing through its period of thickening, becomes absorbed, not uncommonly contracting adhesions so as to subdivide the articular cavity into several compartments; the semilunar cartilages undergo early, and often complete, absorption. The absorption of articular cartilage is generally universal; the surfaces of bone between the inner condyle of the femur and articular surface of the tibia are rough, and denser than natural; the corresponding surfaces on the outer side of the joint are generally rougher, and it is here, owing to the greater movement which exists as contrasted with the inner condyle, that we may find portions of necrosed bone or deep furrows in the osseous tissue. I have seen the opposed bony surfaces so deeply furrowed as to lock into one another. The bones are often very vascular; but when the joint is in a perfectly quiet state, the osseous tissue is found harder than natural. When from any cause, such as the extreme activity of the disease, or from want of proper treatment, the cancellous texture has been acutely inflamed, there may be an abscess in the head of the bone, or ulceration, or necrosis to a greater or less extent. Those opaque masses sometimes found imbedded in the cancellous texture, and once called "tubercle," are now more properly recognised as inspissated pus.

Osseous anchylosis is a rare occurrence. The very fine and comprehensive collection of "diseased joints" in the museum at St. Bartholomew's Hospital contains only seven specimens in which osseous anchylosis has taken place in the knee; and of these one is very partial, and four illustrate that occurrence the more commonly seen, namely, union of the patella to the outer condyle of the femur; thus there are few specimens in which the tibia and femur have "grown together by bone."

There are two methods by which we may render straight a contracted knee-joint:

1. By forcible extension.
2. By gradual extension.

With either of these may be combined the subcutaneous section of such tendons or ligamentous bands as interfere with the object in view.

In former times, surgeons looked only to the immediate effects pro-

duced by the manipulation as regarded the shape of the limb. We now take into consideration the morbid condition of parts within the joint, and study to obtain those changes which will allow the bones to resumes their normal position, bearing in mind that the semiflexed condition of the joint is one which gives the patient ease during the acuter stages of disease. No surgeon in his senses would now forcibly tear through morbid adhesions, and, bringing the contracted limb straight, attempt to keep it so by putting it into an immovable case. He would know, or at least ought to know, that, even if he could keep the limb straight by means of apparatus (a question extremely doubtful), the ends of divided tendons and torn ligamentous bands are held apart, widely separated, and can never again unite so as to serve as supports to the limb. He also is aware that should the apparatus require removal, owing to erysipelas, or any inflammatory disturbance, and the leg again become bent so as to permit of the reunion of the divided and torn structures, the new matter will again contract like any other cicatrix. The violent extension of the knee-joint, combined with the subcutaneous division of tendons and fasciæ, as practised by Dieffenbach and Louvrier, was followed as is well known, by even fatal results, and, so severe was the pain that I doubt whether other surgeons would have prosecuted the enquiry, had it not been for the discovery and employment of anæsthetics. In vol. xl. of the 'Transactions of the Royal Medical and Chirurgical Society', my colleague, Mr. Broadhurst, has suggested a practice, of which the following are the steps. He first subcutaneously divides those tendons likely to interfere with the extending process. When the punctures are healed, namely, from the sixth to the eighth day, the patient is placed under the influence of chloroform, and the adhesions are ruptured by flexing, and again extending the limb. The limb is then bandaged and put in a trough splint, and subsequently again flexed almost to the same angle as before the operation. In the course of two or three days gradual extension is commenced and continued. Passive motion under chloroform is subsequently practised at intervals of from two to three days. He thus divides the tendons, and tears through the adhesions subcutaneously; then readjusting the divided and torn structures, he allows adhesion to take place, and subsequently extends the soft uniting medium.

Although I think, as probably does Mr. Broadhurst, that this proceeding is unnecessarily severe for the greater number of contracted knees, and is more particularly adapted for those cases where bony anchylosis resists the ordinary extending force, I fully concur with him in his introductory remarks, where he says "the excision of articular surfaces is at present of so frequent occurrence, and is undertaken not solely as a substitute for amputation, but is performed where amputation would never be thought of, that I beg to call attention to the forcible rupture of anchylosed surfaces in cases where the active disease has subsided." Excision of the bones of the knee

has lately been twice performed in London under these circumstances; in both there has been a fatal result.

The gradual extension of a contracted knee, either with or without the subcutaneous division of tendons, combined with the application of force, from time to time, sufficient to rupture any bony union, or more than usually resisting band, appears to me the safer and more effectual proceeding. It has been proved, by long experience at the Orthopædic Hospital, by Mr. Tamplin. that scarcely any structures, however hard, can long resist the action of moderate, yet unremitting force. The firmest bands will yield; and in the case of fibrous cords, this passive elongation is permanent, *i.e.* there is no fear of recontractions. The tendons alone require subcutaneous division, for extensions might elongate a muscle, which would become shorter as the force ceased to act.

Another advantage resulting from gradual extension is as follows. By the application of a proper instrument, in which mechanical provision is made not only for flexion and extension, but likewise for abduction, adduction, and rotation, the displaced bony surfaces may be so acted upon as to be directed into their normal relations, and thus to lose their dislocated position.

I affirm that sufficient attention has not yet been paid to the gradual extension of contracted joints, especially as regards the knee. Surgeons seem to me to have wanted patience; to have neglected improvements in surgical apparatus; in former times to have had recourse to amputation with the same premature haste as they now perform excision. I know a patient, at the present moment under the care of my colleague. Mr. Tamplin, who came to the Royal Orthopædic Hospital at the age of twenty seven, having had contracted knee for twenty-five years. The leg came down with properly applied and moderately powerful extending force, and the patient, who had never walked without a crutch, has now perfect power of progression. In the 'British Medical Journal,' January 30, I have related the case of a girl in whom, after subcutaneous division of the biceps flexor cruris, I brought down the leg, after fourteen years' contraction, by the application of moderate force. In the same number are the particulars of a young girl in whom a limb once so much contrated that amputation was proposed, is now becoming straight by the same means.

William L., aged 19, is attending, under Mr. Tamplin, as casual out-patient at the Orthopædic Hospital, whither he walks unaided from some distance, having suffered from most severe disease of the knee-joint. Six years ago, the patient stated, there were thirty fistular openings, leading to diseased bone, in and about the knee, and amputation was recommended both in public hospitals and by private practitioners, a measure which was steadily declined. At the present time, the limb is nearly straight, held so by the usual apparatus; all the openings have healed but two. There is no pain, and the natural health has returned.

We are told in most positive terms that there are certain thickened conditions of the synovial membrane, which are in their nature incurable. I deny the proposition. The thickened membrane will in time be removed, leaving the knee bent and anchylosed. In this condition, at the proper moment, steady extension, without violence, will enable the surgeon, in by far the greater number of cases, to straighten the limb so that it may again be used by the patient as a means of locomotion.

I know that in thus condemning the forcible extension of contracted joints, except in very exceptional instances, I lay myself open to the reply which the numerous cases of reported cures in the public journals afford. In answer, I could speak of forced extension five times repeated, and unavailing at last, but productive of high constitutional derangement; of erysipelas succeeding a similar attempt, and of the rapid recontraction of the limb; of dormant disease roused with such activity, that thoughts of amputation came uppermost in the surgeon's mind. Such dangers cannot be ignored; they perplex and distress the surgeon; and I feel strongly that any plan, which offers some security against their occurrence, is worthy of the support and consideration of the profession.—*Brit. Med. Journ., April* 3, 1858, *p.* 261.

48.—ON THE TREATMENT OF CHRONIC HYDRARTHROSIS OF THE KNEE-JOINT BY PUNCTURE AND INJECTIONS OF IODINE.

By Dr. ROBERT MACDONNELL, Surgeon to St. Patrick's Hospital, Montreal.

[At page 190 of our last volume, we published some observations by Dr. Macdonnell on the above-named subject. We now add another successful case, with a few important observations, on this affection.]

Case.—J. W., aged 13, was sent from a town in Vermont, to consult Dr. Howard, the oculist. for an affection of the eyes; he was admitted into St. Patrick's Hospital, where it was observed that in addition to the disease of the eyes, he also laboured under a chronic hydrarthrosis of the left knee-joint, which had caused lameness, and was attended with much pain at the inner side of the joint and at the insertion of the ligamentum patellæ; the joint was swollen and globular in appearance; the increase in size amounted to nearly two inches more than the healthy articulation; the swelling was soft, fluctuated on pressure, and the fluid could be forced from the lower part to above the patella, on the front of the femur; a crepitating sensation was experienced when the joint was minutely examined. There was no heat of the joint nor discoloration. He was placed under a mild mercurial course, combined with blistering, stimulating liniments, rest, in the recumbent posture, starch bandages, strapping with the mercurial plaster, and the mercury was followed by a course of hydriodate of

potash. After a lapse of nearly two months no improvement was perceptible, and I resolved to puncture the joint and inject with iodine; accordingly this operation was performed in the manner already described, on the 1st of July; no pain followed the operation. About four ounces of fluid were drawn off; it was transparent, of a light straw colour, and coagulated slightly on cooling. The opening was closed with adhesive plaster, a wet roller was carried round the limb from the toes to above the knee-joint, and a padded splint was applied to the back of the leg and thigh. No uneasiness or pain followed the operation, and the joint quickly regained its natural appearance; the pain vanished, and at the end of ten days he was able to walk about; but as a measure of precaution I still kept the joint supported by a starched bandage. This patient was seen by some American surgeons during their visit to the Scientific Association, held here last August, as well as by some practitioners of this city.

The above makes the seventh case in which I have employed in chronic hydrarthrosis of the knee-joint, injections of iodine, and I have not, in a single instance, witnessed the least unpleasant result follow the practice, and in all, it has been eminently successful. Before concluding, I would direct attention to the following points:—

1st. The necessity of a careful diagnosis. It is in chronic hydrarthrosis alone, that I recommend iodine injections.

2nd. Puncture the sac above the level of the patella and on the front of the femur, having first made the tumour tense by a bandage carried round its lower portion.

3rd. Inject two drachms of tincture of iodine with two drachms of luke-warm water.

4th. Having injected that amount of the fluid, manipulate the joint, so as to bring all its surface into contact with the fluid, which is then to be allowed to remain.

5th. Close the external wound and surround the joint with a wet bandage, which should be carried upwards from the ankle to above the knee.

6th. Keep the limb in a straight position on a padded splint.

7th. Do not allow any motion to take place for at least a week after the operation.

8th. When the patient is allowed to leave his bed, take off the wet bandage and surround the joint with a starched bandage.—*Communicated by the Author.*

49.—REMOVAL OF THE PATELLA FROM AN EXCISED KNEE-JOINT.

[In a case at King's College Hospital, where Mr. Fergusson excised the knee-joint for long standing disease of the articulation, after a few weeks' excellent progress of the case, abscesses began to form in the soft tissues about the patella. Fifteen weeks after the first operation an incision was made at the side of the patella, and this bone

being found by the finger to be ulcerated on its under surface, was removed, and the patient is now again in a fair way of making a perfect recovery with a useful limb.]

Mr. Fergusson made some very pertinent remarks upon the proceeding he had just put in practice. From what he had learned of the various steps of the operation of excision of the knee-joint, he was now an advocate for the removal of the patella, even when healthy, as it was liable to give subsequent annoyance. Mr. Jones, of Jersey, had in a most praiseworthy manner exerted his skill on many occasions to save the cap-bone with its ligament entire, and had frequently succeeded; but he (Mr. Fergusson) would for the future take away the bone, provided it was not bound to the condyles of the femur by osseous material. He had been the more induced to follow this proceeding of removing the patella, owing to the great benefit which resulted from the practice in one case which had been treated by his friend Mr. Price. In this instance the patella was similarly affected, and since its removal the patient had been freed from former annoyance. It was sometimes thought that although the ends of the bones remained united merely by soft material for some time, that osseous consolidation would not ultimately follow. This was a very serious error to fall into; for an admirable illustration of patience and good management was evinced in the case of a patient now in the house, and who had come back to exhibit himself to Mr. Partridge, who performed the operation. In this instance the most pleasing result followed; for the man was now able to walk about without the assistance of stick or crutch, and to renew his ordinary occupations. Mr. Fergusson then alluded to the various notions that were entertained by some surgeons with regard to the "bringing about of anchylosis." For his own part he was ignorant of any plan whereby the surgeon could forward so desirable a proceeding; and he believed that the good result which sometimes followed in old-standing disease of the joints was entirely due to nature, and that far too frequently the surgeon had claimed an amount of ingenuity he did not possess.—*Lancet, Feb.* 27, 1858, *p.* 214.

50.—*The Important Point in the After-management of Excisions of the Knee-Joint.*—We wish to draw especial attention, as we have indeed already repeatedly done, to the exceeding importance in the after-treatment of these resections, of keeping the limb in entire rest for a long period. As soon as all bleeding has ceased the limb should be dressed and carefully secured in a straight position on a back splint with movable sides. It may then be swung in the manner now so generally employed. In padding and fitting the back splint in the first instance, in securing also that there is no hurtful pressure on the heel or on either malleolus, the utmost care should be exercised, for this part of the apparatus ought not to be removed until consolidation has

taken place. As the side splints are moveable, no difficulty will be met with in dressing the wound, and the pads, &c., should be secured from soiling by oil-silk. Among the causes of failure after this operation, no single one can, we feel sure, claim so many limbs as the too early change of splints. The over anxiety of the operator in, it may be, his first case, to ascertain that all was doing well, to know whether consolidation had commenced, &c., has, in not a few instances, been the very means of defeating his wishes. It is not "meddlesome midwifery" only which is "bad." Repeatedly has it happened that all was doing excellently well, the limb perfectly straight, &c., up to, it may be, the sixth, tenth, or fourteenth day, the day of the first complete dressing; that then the bones got displaced, and could never after be restored to position. If an operator be conscious of any moral infirmity in this direction he ought at least to take the precaution of dividing the hamstring tendons, but even then his cases must not be expected to do as well as those of surgeons who have a large stock of patience.—*Med. Times and Gazette, Dec.* 12, 1857, *p.* 604.

51.—ON PIROGOFF'S AMPUTATION AT THE ANKLE-JOINT.

By T. S. Wells, Esq., Lecturer on Surgery at the Grosvenor-Place School of Medicine; Surgeon to the Samaritan Hospital, &c.

[This is a lecture delivered at the Grosvenor-Place School of Medicine The diagram here shown is one from Pirogoff's own work. It will be known to most that Pirogoff was the chief surgeon to the Russian forces in Sebastopol during the siege.]

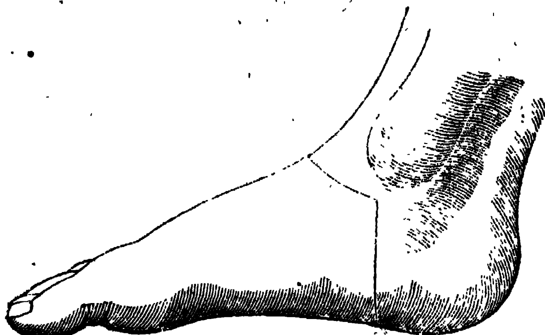
I will translate to you his own words, and having his drawings before us, we will follow carefully the various steps of the operation as he directs. He says:—

"I commence my incision close in front of the outer malleolus, carry it vertically downwards to the sole of the foot, then transversely across the sole, and lastly, obliquely upwards to the inner malleolus, where I terminate it a couple of lines anterior to the malleolus. Thus all the soft parts are divided at once quite down to the os calcis."

Here is the diagram. The inner extremity of this incision is carried obliquely forward some lines anterior to that on the outer side, in order not to cut through the posterior tibial artery until after its division into the plantar branches. Now let us make this first incision and proceed.

"I now connect the outer and inner extremity of this first incision by a second semilunar incision, the convexity of which looks forward, carried a few lines anterior to the tibio-tarsal articulation. I cut through all the soft parts at once down to the bones, and then pro-

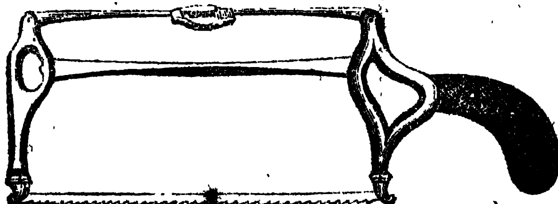
ceed to open the joint from the front, cutting through the lateral ligaments, and thus exarticulate the head of the astragalus."



You see I have made this second incision, have opened the joint, and using only the point of the knife upon the strong ligaments which keep the astragalus in its place, have completed this part of the operation with the greatest facility. The joint is found very readily by fixing the malleoli, and alternately flexing and extending the foot. It is opened with the greatest ease by holding the foot strongly extended, and as the capsule is very broad, the joint opens at once. The internal lateral ligaments are easily divided. The only difficulty in disarticulating the astragalus is about the outer malleolus, but it is easily overcome by cutting closely with the point of the knife all round the malleolus, so as to divide the ligaments which pass from it. Keeping up the extension of the foot the head of the astragalus starts out, and then "it is only necessary to cut through the posterior wall of the capsule to expose the sustentaculum tali." Now for the third step.

"I now place a small narrow amputation saw obliquely upon the os calcis behind the astragalus, exactly upon the sustentaculum tali, and saw through the os calcis, so that the saw passes into the first incision through the soft parts."

Just look at the skeleton: see how the os calcis is grooved on its internal surface. Here about the middle of this surface is the process



—sustentaculum tali—supporting the anterior part of the astragalus. I now follow Pirogoff's directions. The saw I use I should have called "Butcher's" a week ago, but it is one just sent me by Mr. Hilliard, an instrument maker of Glasgow. who says it was given many years ago to Dr. Laurie by Dr. Grahame. You may call it Grahame's saw, or Butcher's saw, which you please. It answers our present purpose admirably by either name, though not better than one of the narrow resection saws of Langenbeck you have seen me use so often.

Pirogoff says very truly,—"Saw carefully, or the anterior surface of the tendo achillis, which is only covered by a layer of fat and a thin fibrous sheath, might be injured."

You see a very few strokes serve to cut through the os calcis. and a touch or two of the knife upon a few shreds left undivided in the sole close to the bone separates the foot. So far the proceeding is a very rapid one. I would be bound to do it easily without the least hurry within one minute.

This sawing the os calcis may be called the third step of the operation; now for the fourth. Lastly, says Pirogoff:—

"I separate the short anterior flap from the two malleoli, and saw through them at the same time close to their base."

Well, this is done without the least difficulty; and now you see the great difference between this operation and Syme's. I say nothing now of the much greater ease and rapidity with which it is done: but you see at a glance that the posterior flap is not a hollow, it forms nothing like a cap or bag, but it contains the posterior tuberosity of the os calcis with the insertion of the tendo-Achillis.

"I turn this flap forwards, and bring the cut surface of the os calcis in apposition with the articular surface of the tibia. If the latter be diseased it is sometimes necessary also to saw off from it a thin slice with the malleoli."

Now let us see what advantages Pirogoff claims for his method. He says:—

"1. The tendo-Achillis is not divided, and so we avoid all the disadvantages connected with its injury.

"2. It also follows that the base of the posterior flap is not thinner than its apex, while the skin on the base of the flap remains united with the fibrous sheath of the tendo-Achillis.

"3. The posterior flap is not cap-like, as in Syme's method, and its form is therefore less favourable to a collection of pus.

"4. The leg after my operation appears an inch and a half (sometimes even more) longer than in the three other operations (Syme, Baudens, Roux), because the remnant of the os calcis left in the flap, as it unites with the inferior extremities of the tibia and fibula, lengthens them by an inch and a half, and

"5. Serves the patient as the point of support."

But to return to the case before us, I will use three or four sutures

to keep the flaps together, and now see how beautifully they fit. Look at the stump from the side. Look at it from behind. It is really admirable, and by bringing the feet together you may see that the difference in length of the two feet when the pelvis is placed square is not more than from an inch and a quarter to an inch and a half.

After operating on the living subject, Pirogoff leaves the two angles of the wound quite open, to admit of free discharge.

In reply to the objection that the remnant of os calcis left in the flap might die, and act as a foreign body, he says the fear that this might prove to be the case prevented him from adopting the operation on the living subject long after trials on the dead had shown its advantages. He also feared that this remnant of os calcis, even if it did not die, would still not adhere to the surface of the tibia, and consequently would become useless as a point of support. But after reflecting upon the facts, that the periosteum of the tuberosity of the os calcis is very closely united both with the skin and with the fibrous sheath of the tendo-Achillis, and is very plentifully supplied with vessels by the *rete calcanei*, he resolved to try the operation on the living, especially as cases occurred which taught him that in wounds of the head by sabre strokes, flaps containing considerable segments of the cranium re-united with the bone below, both by first and second intention. Up to April, 1853, he had performed the operation in three cases, the ages being 12, 13, and 19. All these recovered well, and two of them walked well without stick or crutch, and without limping or tottering. These cases proved undeniably that the tuberosity of the os calcis left on the flap does unite with the tibia, and adds so much to the length of the stump that it nearly reaches the level of the sole on the sound side; secondly, that the tendo-Achillis is not stretched by the altered portion of the tuberosity; and, thirdly, that the progress and healing of the wound need no special attention not required after the other amputations at the ankle. Collections of pus in the sheaths of the divided tendons are observed after any of these amputations. Pirogoff proposes that graduated compresses should be used, and fixed with the immovable plaster of Paris bandage in the course of the tendons on either side of the leg. He believes also that the tendons should not be cut off too short, in other words, "not too near the spot where their synovial sheaths are cut through; their ends should rather project a little. If they are cut too short they conceal themselves in the fibrous canal, or, what is worse, when the limb is moved they slip upwards out of their sheaths." He adds:—"I fear nothing so much as this, namely, when the belly of the muscle contracts, and draws up the tendon divided, or half destroyed by suppuration, out of the sheath. I am convinced that the fixing of the tendons before and during the operation by methodical pressure, and the continuous maintenance of the limb in one and the same position by the plaster bandage may contribute a great deal towards the successful result of these operations."

I will also read you his concluding observations, as they have a very important bearing upon the selection of cases for the operation. They are as follows:—

"It was also worthy of remark that in one of these cases, notwithstanding the suppuration and the considerable gravitation of pus into the flap (in the third case); notwithstanding the softness and fatty degeneration of the os calcis, which could be cut with the knife (in the second case); and, lastly, notwithstanding the bleeding fungus excrescences which formed on the bones (also in the second case), still the remnant of os calcis united firmly with the tibia and fibula. Lastly, one of the cases (the third) proves that the exarticulation at the ankle-joint after my method—at least in children and young people—may be undertaken even in cases of diseased ankle-joint, provided disorganisation has not extended too far over the soft parts about the articulation. In the boy in the second case, I found pus in the capsule during the operation, the cartilages softened and decayed, the ends of the bones also softened and in a state of fatty degeneration, yet the result of the operation was most successful."

Here I must stop. I can tell you nothing of the results of the operation in this country, but I can repeat that in some of the cases where it is said to have been performed, it most certainly was not done in the manner and with the precautions I have brought before you. Whether it has succeeded or not I cannot say, but I do say that in some cases it has not been fairly tested, and I think it is worthy of a full and fair trial. This is the reason why I have quoted so fully the precise words of the eminent surgeon whose name it bears.—*Med. Times and Gazette, March* 20, 1858, *p.* 288.

52.—REMARKS ON THE EXPERIENCE OF THE SURGEONS OF THE "DREADNOUGHT" AS TO PIROGOFF'S OPERATION AT THE ANKLE-JOINT.

By J. Croft, Esq., Assistant-Surgeon to the "Dreadnought."

[This operation, so far as tried, has here met with encouraging success. It has been performed six times—four recoveries, two deaths, one from granular disease of the kidney, the other from secondary deposits of pus in various joints. In all the four successful cases there was suppuration along the tendons of the leg, but no exfoliation of bone. The posterior part of the os calcis was united firmly with the tibia, generally in about three weeks, but in one instance in twelve days.]

I may here remark, that although the os calcis may be diseased at and about its articulating surfaces in instances of scrofulous disease of the joints of the tarsus, it is rarely that the posterior part is rendered too unhealthy to be made use of in the formation of a stump.

The advantages of this operation over "Syme's" (the only opera-

tion with which it can be compared) are, that it may be performed more rapidly as to time, leaves a more vascular flap, forms a longer stump, and produces a firmer pad for the subject to walk upon.

Less time is occupied in the operation, for the somewhat troublesome dissection of the skin of the heel from the os calcis is avoided, and the os calcis sawn through instead.

Greater vascularity of the flap is secured, for the plantar arteries are divided in the hollow of the foot.

The length of the stump is a very important point; it is longer than that in Syme's operation, by the portion of the os calcis left on the flap, which should be quite one inch and a quarter. In the four instances mentioned, the difference in length between the foot operated upon, and the sound foot, was never more than three-eighths of an inch.

The mode of operation, as performed by Mr. Busk, Mr. Tudor, and myself, is to grasp the projecting portion of foot with the left hand, then to enter the point of the knife *immediately* behind the malleolus, and make a semi-circular incision, in front of the point, terminating at a corresponding point behind the opposite malleolus; next, to carry the incision downwards and slightly forwards to the edge of the sole of the foot, straight across the sole, and terminate it at the opposite malleolus, or the point at which the incision was commenced.

Having disarticulated the foot, the soft parts are to be separated from around the os calcis in a line from the posterior margin of the upper articulating surface to the under edge of the articulating surface of the cuboid, and the mass in front of this line to be removed by the saw.

The ends of the tibia and fibula are sawn off in the way usual in Syme's operation. During the process of separating the soft, or rather tough parts, about the os calcis, care should be taken to keep the edge of the knife close to the bone, in order to avoid wounding the posterior tibial or plantar arteries. The portion of the os calcis left on the flap should be placed in contact with the end of the tibia, and if the saw has been entered well behind the calcaneo-astragaloid articulation, and brought out at the under margin of the calcaneo-cuboid articulation, the contact will be accurate. If the bones cannot be placed in accurate contact, thin slices of bone from the upper and back part of the portion of the os calcis should be removed by the saw until they can be adapted. The saw we prefer is Bigg and Milliken's modification of Butcher's Dublin saw.—*Lancet, Feb.* 6, 1858, *p.* 136.

53.—*Excision of the Os Calcis by a New Method.* By JOHN ERICHSEN, Esq., Professor of Surgery at University College, and Surgeon to the Hospital.—Excision of the os calcis is usually prac-

tised by making an incision *across* the sole of the foot, from one malleolus to the other, turning back the heel flap thus formed, making another incision forwards over the calcaneo-cuboid articulation, and then dissecting out the bone. In such an operation as this, the sole is extensively incised, and there is the after-disadvantage of cicatrices being left along the line of most pressure. In order to obviate this, the operation was modified, as described in the following case, drawn up by my dresser, Mr. James. The modification consists in carrying a horse-shoe incision from a little in front of the calcaneo-cuboid articulation round and behind the heel, to a corresponding point on the opposite side of the foot. The semi-circular flap thus formed is dissected up by carrying the bistoury close to the os calcis, the under surface of which is exposed. A perpendicular incision is then made about two inches in length, over the middle of the tendo-Achillis, falling into the horizontal one. The tendon is then detached, and the two lateral flaps dissected up, the knife being kept close to the bone. The blade is then carried over the upper and posterior part of the os calcis, the articulation with the astralagus opened, the ligaments divided, and the bone turned out. The articular surfaces of the astralagus and cuboid should be examined, and, if carious, gouged out. When the flaps are brought together, there is no line of incision in the sole, the horizontal one running round the sides of the foot, and the perpendicular one being above this, and behind the heel. M. Guérin, in the work already referred to, describes an operation similar to this as having been practised by him on the dead subject, but he states that he has had no experience of it on the living. Judging by the case in which I recently performed it, it is easy of execution, and leaves an excellent result.—*Lancet, Jan.* 30, 1858, *p.* 114.

[Mr. Statham, Manchester Street, Argyle Square, proposed and executed these same incisions for the removal of the whole or any necessary part of the os calcis in Mr. Erichsen's presence three years and a half since. It is but fair to Mr. Statham to state this.]

54.—ON AFFECTIONS OF THE JOINTS FOLLOWING OPERATIONS ON THE GENITO-URINARY ORGANS.

By William Coulson, Esq.. Surgeon to, and Lecturer on Surgery at St. Mary's Hospital.

It is well known that certain affections of the genito-urinary organs are occasionally followed by severe disease of the joints. In the following remarks, I have endeavoured to explain the circumstances under which these secondary attacks occur. The injuries and diseases of the genito-urinary organs with which they may be connected are various. They may follow lithotomy and operations on the urethra. They may follow lithotrity; the introduction of instruments

into the bladder; irritation of the urethra from the passage of foreign bodies, and gonorrhœal abscess, with ulceration of the urethra. In fact, any injury or disease which gives rise to primary suppuration in or about the genito-urinary organs of the male, may be followed by secondary articular disease. Besides these, there are joint affections, which appear to be excited by mere irritation of the same parts without suppuration.

The articular affections from the causes above-mentioned present several peculiarities worthy of notice. They are sometimes purulent, sometimes non-purulent; and this distinction is well marked, the two varieties being seldom mixed in the same case. The attack of the joint sets in very soon after the appearance of constitutional symptoms. Thus it frequently happens that the joints begin to swell on the first or second day after the rigours and fever. The secondary deposits are often confined to the joints and muscles, and do not extend to the principal viscera. Notwithstanding the apparent limitation of the general disease, death ensues rapidly after the first appearance of the constitutional symptoms—on the fourth, sixth, tenth, and twelfth days.

On the other hand, many of these cases, though extremely severe, terminate by recovery of the patient; yet the joints have been extensively injured, as is shown by the anchylosis which ensues.

The cases may be distinguished into two kinds. In one, there are severe constitutional symptoms, partaking more or less of the characters of purulent infection, and followed by secondary deposits of pus. In other cases, the general symptoms are less severe, often chronic; and the joint affection is not of a purulent kind. M. Velpeau has described a third class of cases, which he ascribes to poisoning of the blood by urine of a bad quality.

The purulent affection of the joints generally sets in under the following circumstances: a slight injury has been inflicted on the genito-urinary organs, or the patient may have irritated the urethra by attempting to pass a catheter himself. Severe rigours, followed by fever of a nervous kind, ensues; and in one or two days the joints are attacked by pain and swelling. The tumefaction may increase to a considerable size in a few hours, the joint becoming red and hot. The knee, shoulder, ankles, and elbow are the joints most commonly affected. Some of these cases terminate fatally in a fortnight; others again are chronic: even in these the joint disease may commence as early as the second day. There are at first rigours, followed by fever. On the next day, severe pain and swelling attack some of the joints; the periarticular tissue becomes the seat of suppuration; the pus is evacuated artificially; the patient remains in a low, depressed, and doubtful state, for several weeks; but at length recovers, probably with anchylosis of some of the affected joints.

The morbid changes in these cases are various. They are usually inflammatory. The synovial membrane is injected, and sometimes

lined with false membrane, and the joint contains pus; but ulceration of the cartilages is not common. In other cases, the lesions are confined to the periarticular tissues, which are infiltrated with pus; or the purulent inflammation may occupy the interior as well as the exterior of the joint, although the capsular ligament has nowhere given way. In a few cases the joint has been the seat of simple inflammation, and does not contain any pus; and matter may be discovered in joints which did not seem during life to be attacked. It is very rare to find pus in a joint which appeared healthy up to the time of death, but this has occurred in one case.

In chronic cases the periarticular swelling often contains pus, and the cartilages are softened or eroded. Indeed, we may infer that the cartilages and even ligaments have been extensively diseased from the anchylosis which ensues.

In the milder form of the disease, the joints become painful and swollen; but these symptoms are not severe, and the skin is not red. In a few days the affection may subside, and pass to another joint; hence this form is often mistaken for rheumatism. The effused fluid is sometimes purulent; in the majority of cases, we may infer that the effusion is serous, from the manner in which it disappears. I should observe that many of the acute and some of the chronic cases are accompanied by intermuscular abscesses in the limbs.

The nature of the articular affections just described is not well understood. M. Velpeau, as I have said, attributes them to poisoning by urine. M. Civiale confesses that he is unable to explain how they are produced. For my own part I am inclined to attribute the severe cases accompanied by constitutional symptoms, and followed by purulent deposits, to the influence of pus-poisoning.

The analogy of these cases with many which occur in puerperal cases is evident. The absence of primary suppuration may be considered as a fatal objection; but to this I would answer, that the *fons et origo mali*, the primary secretion of pus, which poisons the blood, has been generally found when carefully sought for. Thus I have found small abscesses along the urethra, produced by the frequent passage of instruments for stricture. I have also found inflammation of the prostatic veins. In other cases, small primary abscesses have been found in the prostate or wall of the bladder, or suppurative inflammation in the cellular tissue of the scrotum. All these are sufficient causes; and if the genito-urinary organs were carefully examined in these fatal cases, it seems to me highly probable that the origin of the disease would be more frequently discovered.

The forcible use of instruments and the passage of foreign bodies may fairly be inferred to have produced some laceration of the urethra, followed by suppuration or abscesses. There are, however, cases in which irritation of the urethra is followed by a non-purulent inflammation of the joints. Here we must either suppose that irritation of the canal has given rise to abscess in some neighbouring part—an

event quite possible, though not proved by dissection; or we must confess our inability to explain the nature of such cases, and class them with gonorrhœal rheumatism, to which they bear a striking resemblance.—*Brit. Med. Journal, Feb.* 6, 1858, *p.* 106.

55.—PRACTICAL ILLUSTRATIONS OF THE TREATMENT OF SOME CASES OF INJURY TO THE HANDS.

By JOHN BIRKETT, Esq., Surgeon to Guy's Hospital.

[The author considers it too commonly the practice, even in slight injuries to the fingers or hand, to encircle the parts with strips of adhesive plaster, frequently thus inducing inflammation, thecal abscess, and even the destruction of a finger.]

In all injuries complicated with wounds, my practical experience induces me to urge the adoption of a plan which I will now briefly describe.

After the thorough cleansing of the hand by soaking in warm water, narrow strips of lint or linen wetted in tepid water should be lightly and gently applied around the fingers which are injured, commencing from their ungual phalanges. In each case some slight modification may be required, and often an oblique or even a vertical adjustment of the lint may be useful. When a severe laceration of the back of the hand or palm is to be treated, pieces of lint with a slit in them may be advantageously employed. The finger passes through the aperture in the lint, and the strip then supports the flap of integument very firmly. The arm is to be supported and raised upon a pillow, and irrigation may be used temporarily or continuously. This is accomplished by arranging a vessel to hold water above the patient, and to this a tube of vulcanized India-rubber is affixed, the end of which terminates in a fan-shaped piece of zinc, the convex border of which is perforated with small holes, through which, by means of threads, the water percolates guttatim. A piece of vulcanized Indian-rubber cloth must be laid upon the bed as a conductor for the water as it drains off into some receptacle placed by the side of the patient.

The advantages of this plan seem to be—

1. A constant stream of water is flowing over the injured part, whereby an equable temperature is maintained.

2. When suppuration is established, the discharge, especially if sloughing takes place, is washed away, and the wound kept perfectly clean.

3. The cuticle is kept moist and yielding, a circumstance of no little importance in the treatment of injuries of the hand in the working classes, in whom this structure, often like a layer of horn, prevents the swelling resulting from inflammation, and causes intense pain, and therefore more constitutional disturbance.

4. It ensures the part being kept moist, which is not always the case when the patient is dependent upon another person to apply the water.

In illustration of the advantages of the treatment advocated, I adduce the following cases, which I will now briefly relate.

Case 1.—Incised wound of the Index Finger, with division of its Metacarpal Bone.—A boy, aged 8 years, whilst using a chaff-cutting knife, inflicted upon his right hand the following injury. A wound in the soft parts extended from the palmar surface of the index finger transversely across its radial border, over its dorsal surface, and terminated at the radial border of the extensor tendon of the middle finger. The head of the metacarpal bone was severed from its shaft, and the member hung down from the hand, being attached by the soft parts only on its palmar aspect. The knife had cut into the metacarpal bone of the middle finger also. My dresser, Mr. Penfold, at once determined to attempt the restoration of the finger, and adjusted the parts by means of strips of wet lint in an extended position. The arm and hand were elevated, and the parts were kept constantly wet. Suppuration occurred; but after a few days the wound granulated healthily, and in nine weeks the part was healed, and the boy enjoyed flexion and extension of the finger.

Case 2.—Incised Wound of the Metacarpo-Phalangeal Articulations and soft parts on the Dorsal Surface of the Right Thumb and Index Finger.—Dennis Haley, aged 20, was admitted into Guy's Hospital May 6th, 1853. He was a healthy, robust countryman from Bexley, and employed in a stable. With the knife of a chaff-cutting machine he had inflicted a severe wound transversely across the dorsal surface of the right thumb and index finger. The metacarpo-phalangeal articulations of both these members were laid open. The extensor tendons of the thumb were divided, but those of the index finger were not entirely divided. The thumb was partially dislocated forwards, by the action of the flexor muscles. The wound extended slightly round to the radial border of the thumb. The hand was well soaked in warm water; and afterwards, the soft parts being adjusted, and the articular surfaces of the thumb being brought into apposition, narrow strips of lint, wetted in water, were gently applied around the injured members, beginning from their ungual ends until a complete splint was thus formed. The strips of lint were applied layer upon layer as high up as the wrist joint. The whole hand was then enveloped in wet lint, and supported on a pillow so that a constant stream of water might flow over it from the irrigator. Considerable hemorrhage occurred during the first twelve hours. For a few days afterwards active inflammation existed, which was controlled, however, and in eight days the edges of the wound showed healthy granulations. Irrigation was still continued for a few days longer, after which wet lint alone was applied. About the middle of June the wound was quite healed; and when he left the hospital he had a use-

ful hand. He could flex and extend the index finger, and bring the thumb in contact with it firmly. The thumb was partially dislocated forwards, and did not allow of much movement.

Case 3.—Lacerated Wound of the Joints between the First and Second Phalanges of the Index and Middle Fingers: Both Saved.—A boy, aged 16 years, was admitted in Guy's under my care in February, 1857. A severe injury had been inflicted on his right hand by a circular saw, just before admission. The little and ring fingers were merely hanging by strips of integument; and my dresser, Mr. Broad, removed these through the first phalanx. The joints between the first and second phalanges of the index finger and middle were cut open on their dorsal aspect; but as there was no further injury to them, Mr. Broad determined to attempt their reparation. In this he was successful; for by enveloping the injured fingers in strips of wet lint cicatrisation was effected in 34 days, and the boy enjoyed the movements of flexion and extension of the fingers.

As the value and usefulness of the hand depends in a great measure upon the integrity of the thumb, I may be excused if I devote a few moments to the consideration of the injuries of this important member in particular.

I believe it may be laid down as a rule that no portion of a phalanx or of the metacarpal bone should be removed by the surgeon, even should the bone project beyond the lacerated integuments, and appear to be so denuded, that to save it would be looked upon by the majority of observers as hopeless. This rule is based upon practical experience, and the results obtained in leaving cases of compound comminuted fracture to the reparative powers of nature. One case among several I will relate.

Case 4.—A young man was brought to the hospital, whose thumb was shattered by the explosion of a pistol. The ungual phalanx and about half of the first were carried away, together with the soft parts, as high as the ball of the thumb, and the integuments were hanging in shreds. The stump of the first phalanx projected considerably, and it did not seem possible that it could ever have been again covered by skin. I determined, however, to assist nature in saving all that remained; for, had the parts been neatly trimmed, and the bone covered with integuments, the stump of the first phalanx required to be removed at its articulation with the metacarpal bone. In this case the hand was well cleaned, and strips of lint applied from the carpus towards the ungual phalanx, so as to bring the lacerated integuments as much over the stump as possible. Superficial sloughing of the lacerated surface took place, granulations were soon developed, and about an eighth of an inch of the stump of the phalanx exfoliated. After this the wound healed rapidly, and the lad obtained a most useful hand, enjoying all the movements of the second phalanx. He came under my observation a few years after this accident, and I was gratified to feel the power he enjoyed in grasping my hand between

the stump of his thumb and fingers. He was then pursuing the employment of an engineer, an occupation requiring considerable manipular dexterity.

I trust my hearers will excuse the detail of this case, hoping that its result may deter the younger members of the profession from an officious interference with the reparative powers of the animal economy. No case, at first sight, presented more discouraging prospects; yet I never had one attended with more satisfactory results.

In severe lacerations of the soft parts of the fingers and hands, I believe we are not justified in pursuing any other treatment than an attempt to save the parts. However ragged and lacerated the integuments, it is surprising how nature restores the injured member; and in the treatment of these cases the wet lint dressing assists the reparative powers admirably.

A machine is employed in some manufactories under the term of a "devil," to tear rags into fine shreds. Boys are employed to feed this machine, which consists of a roller covered with spikes, and which performs rapid revolutions. These boys often get their hands drawn in, and the result is most frightful laceration.

Case 5.—An injury of this description occurred to a little boy who was brought into Guy's Hospital under my care. Both hands and fingers were frightfully lacerated, the integuments hanging from them in shreds. At first sight, they seemed to be hopelessly damaged. The injury was chiefly, however, on their palmar aspect, and the movements of flexion and extension were not destroyed. The fingers had suffered most, and the ungual and second phalanges of the right index finger were nearly torn off. If, under the circumstances above described, the parts most injured had been removed, little more would have been preserved than the palm of the hands; for, upon examining each finger, if any portion of them had been removed, the amputation must have been performed at the heads of the metacarpal bones. I therefore determined to attempt the reparation of the injury; and, with this view, after the removal of the injured portions of the right index finger, the other fingers and thumb were dressed with wet lint, and the integument which remained was brought over the parts as neatly as was practicable. In these vertical lacerations it is remarkable how the skin contracts laterally, and becomes drawn into a narrow strip upon the dorsal aspect of the finger when the wound is on the palmar surface; and, in this case, this effect was so marked as, upon some of the fingers, to expose the theca and the tendons, as if a dissection had been made of them. Slight sloughing of the lacerated edges took place, but a few days sufficed to bring about a healthy granulating action, and cicatrization proceeded favourably. After the hands were healed the boy enjoyed a considerable amount of movement in the fingers; indeed, to a far greater extent than would have been anticipated after the first examination of the injury.

The injuries of the hand to which I believe the treatment described to be adapted may be thus classified:—

1. All incised and lacerated wounds of the integuments.
2. The same wounds complicated with similar injuries of the muscles or tendons.
3. Incised and lacerated wounds, by which the joints are cut open.
4. Compound fractures of the bones of the metacarpus and phalanges, with severe contusion, and those accidents by which one or more of the fingers are torn off by machinery, leaving, as in the thumb for example, more or less of the bone of that important organ exposed without any covering of soft parts.
5. Injuries produced by the explosion of gunpowder from firearms, with or without shot, by the force of which the soft parts are more or less lacerated, contused, and destroyed, and the bones fractured.—*Brit. Med. Journal, Dec.* 12, 1857, *p.* 1023.

56.—THE USE OF PLASTER OF PARIS IN FRACTURES.

By P. W. SWAIN, Esq., House Surgeon, King's College Hospital.

The use of plaster of Paris bandages in certain fractures of the upper and lower extremities has of late become so frequent at this hospital, and has been attended with so much success, that perhaps a few remarks explanatory of its application, together with the record of some cases illustrative of its use, may not be unacceptable.

The usual manner in which a plaster of Paris bandage is applied is as follows:—An ordinary roller of unbleached calico is thoroughly saturated with *cold* water; about two pints of cold water are then poured into a basin, and to it is added, by handfuls, the finest ground plaster of Paris (the mixture being the while constantly stirred round with the hand), until a paste somewhat thicker than cream is obtained. The end of the wet roller is then placed in this mixture; and being gradually unrolled by an assistant, is re-rolled under the plaster of Paris, in such a manner, that the whole bandage passes through the paste and becomes saturated with it. The injured limb is then placed in proper position, and the roller is passed *rapidly* round it, twice or thrice doubled, some of the paste being smeared over the surface of the bandage between each layer. The outer surface is then smoothed over with a spatula, and the whole is left to "set," which process is accomplished in from twenty minutes to half an hour. During the process of setting, the limb must of course be retained in position by sand-bags or some other convenient method. After the bandage has set, its surface is painted over with white of egg, which prevents the plaster of Paris from cracking or crumbling off. The great point to be attended to in applying this bandage is to do it with the greatest rapidity; for, unless this is attended to, the plaster sets before it is applied, and the bandage becomes useless. Another point to be observed is that the bandage must be applied with tolerable firmness, as we find that, unlike the starch or dextrine bandage, which must be

put on very lightly to allow for shrinking, this has a tendency rather to expand and make a loose and useless case for the limb.

The advantages attached to this form of bandage appear to be many:—

First. Its simplicity, and the celerity with which it may be applied. With plaster of Paris at hand, as it now always is in the wards of our hospitals, a fracture may be permanently put up within ten minutes after admission, before the swelling otherwise consequent on the injury can supervene.

Secondly. The quickness with which the plaster sets renders its application to *recent* fractures admissible, as it avoids the necessity of keeping the patient long in a constrained position, and the risk of the ends of the bones being put out of place by any untoward movement.

Thirdly. The eventual cure of the fracture is much hastened by getting the patient out of bed on the day after admission, and allowing him to leave the hospital in perhaps less than a week, both which results are obtainable by the use of this bandage.

Lastly. The cleanliness of its application and its after appearance are not the least of its recommendations. It use was first introduced into our hospital by the late house-surgeon, Mr. Heath, who saw it applied by M. Maisonneuve, the surgeon to La Pitié in Paris.

The following are some of the cases in which this bandage has been used:—

Case 1.—*Fracture of the Tibia.*—Thomas S——, aged 8, was admitted under the care of Mr. Partridge on June 21st, 1857, with transverse fracture of the left tibia, caused by a fall from a ladder. On admission, there was no displacement, a little swelling, and much discoloration about the parts. An evaporating lotion was ordered; and on June 23rd, all swelling having subsided, a plaster of Paris bandage was applied. After its application the patient suffered no pain or inconvenience, and was discharged on July 4th. Three weeks afterwards he presented himself at the hospital, when the bandage was removed, and perfect union found to have taken place.

Case 2.—*Fracture of the Fibula.*—John E—— was admitted under Mr. Bowman's care, on July 2nd, with fracture of the left fibula, three inches above the malleolus. The accident was caused by his slipping off some palings up which he was climbing. The limb was much bruised and swollen, and evaporating lotions were therefore applied. On July 6th, the swelling having subsided, the leg was put in plaster of Paris, and the patient allowed to get up from bed and move about the ward with a crutch. On July 15th he was discharged; and three weeks after the bandage was removed and the bone found to be united. He suffered no pain whilst wearing the bandage.

Case 3.—*Fracture of the malleolus.*—Margaret A——, aged 56, was admitted under Mr. Bowman's care, on July 31st, with fracture

of the left external malleolus. The accident happened by her slipping down some stairs. The ankle was much swollen and very painful. Fomentations were kept on until August 3rd, when the swelling having nearly all gone, a plaster of Paris bandage was applied. On August 8th, the remaining swelling having gone down, the case became loose. It was then slit up, the front and the cut edges pared and brought together with a bandage. On August 15th she was discharged, able to walk pretty well with a stick.

Case 4.—Fracture of the Tibia.—William S——, aged 42, was admitted under Mr. Bowman, on October 16th, with fracture of the tibia and fibula, about an inch above the malleoli. There was no displacement or swelling. The accident was caused by some old stairs giving way with him. The fracture was put up immediately on admission in plaster of Paris. He was able, two days after, to move about the wards, complained of no pain or inconvenience, and was discharged on October 31st. About a month after his discharge the bandage was removed, and the fracture found to be completely united.

Case 5.—Fracture of the Fibula.—John L——, aged 34, was admitted under Mr. Fergusson, on February 2nd, with fracture of the left fibula, about the middle of the lower third. The accident was caused by his slipping off the curb-stone. On admission there was no swelling, and very little displacement. The limb was immediately placed in a plaster of Paris bandage. On the next day he was enabled to walk about the ward with a crutch, and complained of no pain. On February 13th he was discharged. On February 20th he presented himself at the hospital, having come some distance with the aid of his crutch. The bandage was entire, and the patient had suffered no pain.

Case 6.—Fracture of the Humerus.—Mary S——, aged 42, was admitted February 5th, 1858, under Mr. Bowman, with a fracture of the left humerus, at the junction of the middle and lower third. The accident was caused by her being knocked down by a cab. There was no swelling about the parts. The arm was bandaged from the hand to the elbow. The limb was then semiflexed, and a plaster of Paris bandage was applied, extending from just below the elbow to the axilla. The arm was retained in position with a bandage until the plaster set. She experienced no pain, and the arm appeared in good position. On the 10th she was made an out-patient. She has since presented herself on two or three occasions. The bandage remains intact, and she complains of no pain.

These cases have been selected out of a great number that have occurred in the hospital, as illustrative of the use of plaster of Paris in fractures. Fractures of the fibula seem to be those in which its use is most frequent; but, as the above cases show, any simple fracture where there is not much displacement may be treated in a similar manner.—*Brit. Med. Journal, Feb.* 27, 1858, *p.* 161.

57.—CASES OF NECROSIS OF THE BONES OF THE FOREARM.

September 29th. Thomas K—, a boy aged 9 years, admitted into the Great Northern Hospital under the care of Mr. Savory, with necrosis of the right radius. There are four fistulous openings leading to the radius, which can be distinctly felt bare. The highest aperture is near the upper extremity of the bone, and the two lower (one of which is in front) are near the wrist. No loose fragments of bone can be detected. The elbow and wrist joints move freely. The boy states that nine months ago he first perceived pain of a slightly intermitting character, but always aggravated at night, over the styloid process of the radius. Shortly afterwards abscesses formed in the wrist, and on the front of the fore-arm, just below the bend of the elbow. He was under treatment in the country, but the arm grew worse. At the beginning of August last he became a patient at the Royal General Dispensary under Mr. Savory, who watched the case and finally admitted him here for operation.

Considering the present condition of the limb and the history and duration of the disease, there can be little doubt that a considerable portion of the radius is necrosed; and as the state of the boy's health appears to demand some interference, Mr. Savory proposes to remove the dead bone.

Oct. 2nd. Chloroform having been given, Mr. Savory made an incision along the back of the forearm, over the middle two-thirds of the radius, and through the sinuses; the bone was at once exposed, and the whole shaft was found to be free from periosteum, and dead; it was divided in the centre, and each half drawn out with the greatest facility; the articular extremities remained untouched. and the wrist and elbow joints therefore uninjured, and their movements unimpaired. The shaft had in all probability separated at the epiphyses, from the extremity of each of which new bone had been thrown out, so as to encase the ends of the necrosed shaft for an inch or more. There was scarcely any hemorrhage, and the wound was closed by sutures and strapping. The forearm, supported by a bandage, was placed in a prone position, on a straight splint.

3rd. Had a good night, the arm comfortable. Ordinary diet.

℞. Acid. nitr. dil. ♏ vij; cinchon. decoct. ℥j ter die.

4th. Slept very well. The wound dressed; the greater part has healed very perfectly by adhesion, and the remainder is granulating.

9th. The wrist evincing a tendency to twist outwards, this was counteracted by placing a small splint on the radial side of the forearm, resting at each extremity, respectively, on the outer condyle of the humerus, and the styloid process of the radius, and therefore having an axis as nearly as possible identical with that of the removed shaft. The wound is nearly all closed, and the boy, in a much better state of health than on admission, left the Hospital.

The great object of future treatment, of course, will be to maintain the limb in a proper position, until a new shaft is provided.

We have given the above report exactly as sent to us. The case is of much interest, not so much in respect to the extent of the necrosis, since many similar ones have occurred, as on account of the prognosis. Will the shaft be restored? To return a satisfactory answer to this question, we must consider the pathology of the case; and, secondly, the actual results of experience. With regard to its pathology, it is well known that the necroses of young children are far more liable to be attended with deficient repair than those of adults. In them the periostitis is peracute, and the periosteum is often stripped off very quickly and over a very large surface. This form is well illustrated by a specimen obtained by the writer some time ago, and now in the museum of St. Bartholomew's in which the entire clavicle of a child was as perfectly and cleanly denuded of periosteum as if it had been soaked for a preparation. The bone was surrounded by a bag of pus, and stripped-off membrane had carried with it no osseous spiculæ whatever. The disease had only occupied a few days, and had followed a blow. Had the patient lived, there would probably have been little hope of the production of a substitute shaft. We suspect that the bone-producing power of periosteum alone has been much overrated. In all the forms of necrosis in which good substitute shafts are formed the disease has usually been but sub-acute, and has not only detached the investing membrane slowly, but has separated with it numerous spiculæ of bone. Excepting in young children, peracute simple periostitis is seldom seen. But any arguments drawn merely from pathological inference will be much less conclusive than those furnished by actual facts. As stated above, our own experience has been, that in young children the surgeon's hopes of good reproduction of bone are not unfrequently doomed to be disappointed. The following case furnishes such an important fact in evidence, that we must cite it.

[The subjoined case and remarks were written out for the Hospital Reports of the 'Medical Times and Gazette' about two years ago, but were not published.]

"There is a case now under the care of Mr. Cock in Lazarus Ward, Guy's Hospital, which is well worthy the inspection of any who take an interest in what is called Conservative Surgery. It is that of a young man, the whole shaft of whose right ulna was removed in early life, and has never been in any degree reproduced, but who yet enjoys excellent use of the extremity. It exhibits in a most striking manner the great powers which nature will exert in accommodating parts to conditions most different from those originally intended. And here it may be remarked, that it is a subject of great regret and of much loss to surgical knowledge, that cases in which operations of what are termed the conservative class have been performed, are not

watched over a longer series of years than is generally the case. There can be no doubt but that, if certain cases in which operations are performed, apparently without much of hope, were always seen again after a few years had elapsed, that the results obtained would often be found to far surpass the best that had been expected. The processes of nature in completing the re-adaptation of parts to their altered relations require time, but if due time be allowed the evidences of adaptive effort manifested are often surprisingly great. One might have supposed that a very useless sort of a member—an encumbrance rather than a help—would have resulted from the removal of the whole ulna, and the dislocation of the upper end of the radius; that such, however, is not necessarily the case, let the following narrative testify:

"Samuel Daley, now aged 18, a healthy looking lad, is now under Mr. Cock's care, on account of an affection not in any way connected with that which forms the main interest of his case. His right arm presents the following conditions: There extends along the inner border of the fore-arm, almost from the wrist to the elbow, a linear cicatrix, beneath which the parts are somewhat fallen in, and the border, instead of being round and full, is concave. The styloid process of the ulna, and its whole lower articular head, may be felt in its place, but between this and the olecranon the bone is entirely deficient. The cicatrix marks no doubt the incisions by which the shaft was removed; and there would appear to have never since been the slightest attempt at reparation. The extremities of both articular ends are irregular, and much in the condition left at the time of separation. The olecranon is about an inch long, the shaft being abruptly deficient, with the exception that a very slender spicula, about two inches long, extends forwards from its inner border. The lower head of the bone is about half an inch long, and ends abruptly. The radius is discolated forward, over the inner condyle of the humerus, and has there very free motion, being restrained only by membranous bands. The arm is thin, and the state of its bones in the respects adverted to are very easily made out. The lad states that he is right-handed, and always uses the affected arm. He is accustomed to wheel a barrow, to lift heavy weights, and accomplished all other necessary achievements with it. Its defect appears to be of remarkably little inconvenience to him. As to the history of the original disease, it appears that he was treated in St. George's Hospital, at the age of four, for necrosis of the bone, and that four operations for the removal of sequestra were performed."

Here then is a case of necrosis in a young child, in which not the least attempt at re-production of bone ever took place. We may suitably append to it the particulars of the following one, which came under our notice in 1851. It is further interesting as being an exact parallel to Mr. Savory's, inasmuch as the same bone was affected:—Mary Ann H., aged 10, was admitted with necrosis of the right radius, and numerous sinuses. The attack was said to have begun without any

injury, and was attended by extreme pain. She was admitted at one of the large Hospitals, and such was the degree of constitutional disturbance, that amputation was decided upon and the day fixed, when her friends refused to consent, and removed her. The sequestrum was extracted early in October, by a long incision in front of the arm; it comprised the entire shaft, the epiphyses excepted. This was about three months after the original inflammation, yet there was no formation of new bone. The writer has no note of the case later than December 10. At that time the incision had soundly healed, and all that could be felt in the line where the radius should be was a band of induration perfectly flexible, and which yielded on the slightest motion of the wrist. The girl appeared to be in excellent health, so that there was no reason, other than the essential nature of the disease, why the formation of a new shaft should not have commenced.

The case occurred at the Hospital for Skin Diseases, where the girl was under care for a cutaneous affection, when cured of which she unfortunately ceased to attend.—*Med. Times and Gazette, Oct.* 31, 1857, *p.* 453.

58.—ON LATERAL CURVATURE OF THE SPINE.

By Holmes Coote, Esq., Assistant-Surgeon to St. Bartholomew's Hospital, and to the Royal Orthopædic Hospital, &c.

The body of a newly-born infant was brought to me by Mr. Dunn for examination, as presenting a singular combination of abnormities. There were noticed:—

1. Deficiency of the cranial bones posteriorly, and the presence of a large bag containing fluid communicating with the interior of the skull.
2. Hare-lip.
3. Fissured palate.
4. Congenital deficiency of the abdominal parietes, so that they burst during birth.
5. Talipes varus of both feet.
6. Double lateral curvature of the spine.

From numbers 1 to 4, we have illustrations of arrest of development. The fœtal layers, which curve forward to complete the cavities of the body by uniting in the mesial line, had here performed their work ineffectually; development had been arrested while there were two separated halves of the body. Hence the open fontanelles; the hare-lip; the fissured palate; the thinned abdominal walls. We see the same in the fissured sternum; in epi- and hypo-spadias; and in the permanent and normal opening of the nares, mouth, vagina, urethra, or anus.

In 5 and 6, we have instances of intrauterine deformities, caused by long-continued pressure of the uterine parietes upon the growing

fœtus. The inward-turned feet cannot execute those movements, by which the first approach to the normal direction is attained. The muscles, ready formed to contract, are impeded; and the club-foot becomes permanent. The elongating spine has no space for its increasing growth. It becomes compressed, and curves laterally; *i. e.*, in that direction where it meets with least resistance. If the compression be slight, the curve is single, and extends in one sweep from the upper dorsal region to the pelvis. If it be severe, the curve is double, convex in one direction, and concave in another.

Do these deformities, depending upon compression, ensue from accidental deficiency of the liquor amnii, or from natural defect in the uterus, by which its power of expansion is limited? I should be inclined to doubt whether accident ever produced intrauterine errors. But yet others of great experience have stated that congenital deformities may occur in one child only in a family; the others being perfectly well formed. I confess that at present I have not data sufficient to answer the question.

In this communication, I wish to confine my remark to "lateral curvature." The fœtus was carefully dissected, in order that we might see why it was that the spine was twisted.

First, the vertebræ and the muscles which acted upon them, presented no abnormity. The erectores spinæ, those assemblages of muscles which lie on each side of the spinous processes, were complete in every part, and equally developed, whether on the convexity or on the concavity of the vertebral column. They were formed ready to execute their allotted function; but it was obvious that the deviations of the spine from the straight line had so displaced their insertions, as entirely to alter their sphere of action. The action of the sacro-lumbalis and the longissimus dorsi on the side of the concavity would have been, if any, to increase the curve. The same muscles spread over the convexity would twist or rotate some vertebræ, but in greater part would wither or become atrophied. I particularly desired to witness the effect upon the curve of the consecutive detachment of each muscular slip from its insertion, and accordingly cut through the tendons of both the principal muscles (namely, sacro-lumbalis and longissimus dorsi) first on the right and then on the left side, pressing and examining the curve at each instant, in order that I might detect the moment when resistance of any sort or kind was overcome. No effect ensued. The curve was as resistant as ever.

It may be as well to remark that owing to a stupid error, long since corrected by Professor Owen and others who have followed in the course of homological anatomy, but hitherto continued in the schools, the anatomy of the muscles of the back is inaccurate, and rendered so incomprehensible, that it is quite the fashion to profess ignorance of the subject. These muscles, however, are simple to a degree, and extend from homologous points of bone from the pelvis to the head. In the same manner as the interspinales reach from spine to spine, so

do muscular and tendinous slips composing the longissimus dorsi pass from diapophysis to diapophysis (*i. e.*, the tubercle of the lumbar region; the transverse process of the dorsal; and a rough spot near the articulating surfaces in the cervical region), and those of the sacro-lumbalis from one rib to another.

We may conclude, therefore, that these muscles, the great extensors of the spine, have nothing to do with the production of lateral curvature; when the spine bends, they lose their proper relations, and cannot execute their functions. In old standing cases, which I have examined in the dissecting-rooms, I have found the muscles on the convexity elongated, attenuated, and wasted; those on the concavity wasted also, but tense from secondary or *adaptive* contractions. But cut them through in every way, and the skoliosis, or lateral curvature, remains unaltered. No wonder that surgeons, who have been taught to believe in the "cure of a crooked back by the healthy exercise of its muscles," should be doomed to disappointment: that the practice of putting weights on the head of one, whose spine is already too weak to support the natural burden, should aggravate instead of alleviate the evil. "When I first became engaged," observed Sir Benjamin Brodie, in a lecture delivered at St. George's Hospital, 1846, "in a considerable private practice, and cases of curvature of the spine were presented to my observation, I was in doubt as to their nature and treatment; in this respect my education had been imperfect, and I had learnt nothing of them from my teachers.

What is it, then, which holds the spinal column thus curved, if the bones are primarily unaltered in shape, and the muscles are not concerned in the deformity? Unquestionably the spine yields to the superincumbent weight through weakness of the ligaments; these structures yield and contract, as we know ligamentous structures can contract, along the concavity. It is not one but every ligament which contributes to this end; those between the transverse processes; the fibrous capsules of the articulating processes; the corresponding part of the anterior and posterior common ligaments; moreover, there exists a general adaptation of surrounding parts. The yielding of these ligaments, easy and comparatively painless in a growing girl, is attended with extreme suffering in the adult, as was shown in the case of the late Gideon Mantell, the *post-mortem* examination of whose body has been most accurately given in the thirty-seventh volume of the 'Transactions of the Royal Medical and Chirurgical Society', by my colleague, Mr. Adams.

To effect a cure, the spine must be slowly pressed into its proper shape, and there held by means of instruments until the same adaptive process of contraction, which ensued in the deformity, re-establishes the figure.

These remarks naturally point to some important conclusions in the matter of treatment.

First, any system based upon the development of muscular agen-

cies is fundamentally wrong. When the spine is straight, and not before can good result from the action of the extensor muscles.

Secondly, although it be true that in some early cases the deformity is very greatly lessened by the patient assuming the recumbent posture, yet experience teaches us, that want of exercise is followed by loss of tone, and impairment of general health, under which circumstances the spine is little calculated to retain its normal form when the patient resumes the upright posture.

Thirdly, mechanical support must be constant and sufficiently firm to act upon the vertebral column; hence instruments must be strongly made. Mr. Tamplin has shown that those of slighter make *bend back on* themselves, instead of acting upon the curvature; they yield to the vertebral column instead of commanding it. The nature and peculiar construction of the instruments now in use can be best illustrated by particular cases.

If the treatment of lateral curvature be involved, according to some authors, in mystery, the fault lies with those who set aside in this special subject the general principles of surgery. "The disease," says a modern author, "consists simply in a relaxation of the muscles and ligaments of the spine, in consequence of which the vertebral column being no longer able to support the weight of the head, neck, and shoulders, becomes curved to one side." The condition of the vertebral column is, therefore, analagous to that of the bones of the leg in knock-knee (*genu valgum.*)

Suppose a surgeon were consulted by a young person suffering from knock-knee and flat-foot, would he recommend his patient to strap a knapsack on his back and take a walking tour through a hilly country? Assuredly not; he would advise rest; he would apply splints outside the leg, and supports to restore the lost arch of the foot.

But let the patient be a young girl with a curvature of the spine, and in a moment the current of the surgeon's thoughts is changed. He recommends tonic medicines, frictions of the muscles of the back, the use of dumb-bells, calisthenic exercises, weights on the top of the head! By these means he assures his patient, whom he knows to be suffering from weakness of ligaments, that the muscles of the back may be strengthened, and that the increase of the deformity may be prevented.

I repeat that the muscles have no share in originating the deformity. But when the spine is curved, the muscles in the concavity contract like the string to a bow, and if they could act, they would increase the deformity.

I will next direct attention to the following point. The deformity, once established, increases at different rates of progress, if unchecked, through life. There is no age at which sufficient consolidation of the bones and ligaments occurs to secure the patient from increase of the evil.

Case 1.—Rosa S., aged 11, residing near Cambridge, became the sub-

ject of a very slight lateral curvature during the year 1857. I saw her November 18th, 1857, in conjunction with a professional friend, and it was arranged, not without misgiving on my part, that in consequence of the small amount of deviation from the straight line, she should only have that support which would be afforded by a pelvic band and two crutches to extend to the axillæ. Proper directions were given that the patient, a fine tall girl, should take a sufficient amount of rest. I heard from the mother, on several occasions, that there was no marked improvement: then came intimation that the curvature was increasing, and I accordingly arranged to see the child, February 24th, in London. There was a well-marked curve to the right, including the whole of the dorsal vertebræ; the lumbar vertebræ were upright, but it was easy to see that in a short time a compensating inferior curve would form. The health was good, except that there was a general weakness after exercise, and the patient disliked the deformity especially as affecting the shoulder and hip. I directed a pad to be applied by means of a steel bar, worked with screws and pressing on the convexity of the curve, as is usually done at the Orthopædic Hospital. A steel crutch extended along the left side of the body to the corresponding axilla. Sufficient time has not elapsed for me to pronounce that the patient is cured. But she is about to return to the country in comparative comfort: the deformity will not increase, and she will be enabled do take exercise suited to her age in safety. In the course of a few months she may be able to wear properly constructed stays.

Case 2.—A young girl, aged 18, named Sarah P., apprenticed to a draper, applied to me at the Royal Orthopædic Hospital, January, 1858, in consequence of lateral curvature of the spine of two years' duration. She had consulted many surgeons in the county whence she came, and had been dissuaded from wearing instrumental support. The curvature increased. She experienced general pain over the back, extending to both shoulders, especially the right; pain extended round the ribs, along the course of the intercostal nerves, producing "stitch in the side;" there was frequent palpitation of the heart and faintness towards night time. For the last six months menstruation had ceased. Upon examination I detected a single long curvature, including all the dorsal and the upper lumbar vertebræ, the convexity directed to the right. January 18th, 1858, I directed the application of the instrument usually employed, with a single pad.

February 14th. She appeared to be greatly relieved of all the pains which had been fixed in the back; she had gained a quarter of an inch in length.

February 21st. Menstruation has returned: her general health is much improved; she considers herself fit to return to her home, above one hundred miles from London, promising to present herself in the course of a few months.

Case 3.—Maria M., aged 16, has been the subject of lateral curva-

ture for three years; she suffers from great weakness and pain in the side; her occupation is that of dress-making, and she sits thirteen hours a-day. Upon examination there was detected a double lateral curvature, namely, a short curve to the right in the upper dorsal region, and a long curve to the left extending from the dorsal to the lumbar vertebræ. January 18th, 1858. An instrument with a double pad, was applied.

February 28th. The case under treatment. The pain and sense of weakness is greatly relieved.

Case 4.—Harriet B., aged 26, domestic servant, occasionally has carried a child; has suffered from lateral curvature for the last three years. It has of late so much increased as to prevent her following her occupation. The symptom of which she complained most was pain under the inferior angle of the right scapula. Upon examination it was found that she had a single curve to the right.

February 18th. An instrument, as usually constructed, with a single pad, was directed to be worn.

February 24th. The pain has subsided. The spinal curvature is becoming straight.

A young woman has been under my care, since October last, with double lateral curvature. An instrument has been applied, and she has gained at the present time one inch and three-quarters in height. I have given directions that she should return to the country, and see me again in a couple of months, when I hope to be able to apply with success support of a simpler character.

Mr. Tamplin has at the present time a case under his care, in which the patient is above thirty years of age, and he has had others much older. I have related in a preceding number the particulars of a case, aged thirty-three.

There are many who, on the perusal of these cases, will exclaim, —"We acknowledge the disease is progressive, but you, by your instrumental support, may afford, it is true, temporary relief, yet when that support is removed, the disease will be worse than ever. You weaken instead of strengthening the vertebral column." I deny the accuracy of this reasoning in my own name and that of my colleagues at the Orthopædic Hospital. It is opposed to our daily experience. The relief afforded by instrumental support is *not* temporary; and as a witness, to whose unwearied industry no professional man can refuse a just tribute, I quote a case related by Mr. Stanley.

"Weakness of constitution, whether connected with rickets or not, is, in most cases, the source to which we look for explanation of distortion of the spine. Such an exception to the general rule did occur in the following case:—In a female, sixteen years of age, of feeble health and slim person, a single lateral curve of considerable depth, with its convexity to the right, and including the whole length of the spine, had formed in the course of a few weeks. That the yielding of the spine was owing to the weakness of the structures, which should

firmly bind together its component pieces, was evident by the effect of such moderate extension of the column as could be made by gently elevating the head and shoulders, for then the curvature wholly disappeared. An apparatus was applied for the object of keeping the vertebræ in their proper place; and when this had been continuously worn for nine months, it was removed without the recurrence of the distortion; and, besides, it was ascertained that the stature of the body now exceeded by two inches that which it was ascertained to be at the time of the first application of the apparatus." ('Stanley, On Diseases of the Bones,' p. 221.)

This case forms no exception to the general rule. It is an illustration, confirmed by high surgical authority, of the value of instrumental support and mechanical treatment in deformities of the spine. Can we, I ask, ignore such evidence, in justice to the profession we are called upon to practice?—*Brit. Med. Journal, Feb. 27, and March 6, 1858, pp.* 164, 187.

59.—ON UNNECESSARY ORTHOPÆDIC OPERATIONS.

By Dr. W. J. LITTLE, Founder of the Royal Orthopædic Hospital, &c.

[It has been previously shown by the author that the slighter forms of congenital infantile varus, and relapsed cases of the same, might be treated without tenotomy, (see p. 217 last volume.)]

I shall now endeavour to demonstrate that a still larger proportion of those contractions which take place subsequently to birth may be so treated, at least as successfully without division of tendons as with the performance of that operation. In order not to appear to disparage Stromeyer's great discovery of subcutaneous division of tendons, and to prevent misconstruction, I may at once state that many cases of non-congenital deformities in various parts of the body are, in their advanced stages, relievable only with the aid of subcutaneous tenotomy. Talipes equinus, wry-neck, contracted elbow and knee, when severe, and of several years' duration, may be here adduced; but it is matter of weekly experience to me how singularly the necessity for resort to the tenotome becomes restricted, when mechanical treatment by means of properly adapted and adjusted apparatus, and manipulations aided by physiological treatment, are resorted to. Having been in the first instance exclusively instrumental in removing the treatment of deformities, as a rule, from the hands of instrument makers to those of the members of the medical profession at large, with great advantage to the public, it will not be imagined that, by restricting the performance of surgical operation to fewer cases than it has of late years been applied to, I propose again to delegate the treatment of deformities to the instrument maker. On the contrary, I am fully persuaded that the proper contrivance, selection, and even the application of mechanical instruments, can only be judiciously effected by the medical man properly versed in anatomy and pathology, or under his immediate supervision.

The reader is aware that, in early life, from certain not very clearly defined forms of disease in parts of the cerebro-spinal system, one set of muscles in a member may lose the power of contracting, become relaxed or paralysed, whilst the antagonist muscles more or less speedily manifest a disposition to contract; or that the muscles on both sides of a member (flexors and extensors) without any distinct paralysis, lose something of their power of acting under volition: a state of half-paralysis and half-spasm occurs, to which the late Marshall Hall first, I believe, applied the term spasmo-paralysis, the consequence of which is, that the stronger set of muscles, commonly the flexors, acquire a preponderance, and contract the limb in the direction of their action.

To these causes—partial paralysis and spasmo-paralysis—the majority of contractions of infancy and childhood owe their origin. If the tendency to contraction be borne in mind by the medical attendant, its prevention may be effected, or if contraction be discovered when nascent, its further progress may be interrupted by suitable treatment—viz., attention to nutrition and the general health, especially to the condition of the alimentary and nervous systems; by local remedies, such as adequate covering of the part, in order to maintain, if possible, a proper temperature, particularly during winter—by periodical manipulations, so as to ensure the part being put thoroughly through all its natural movements daily once or oftener, and by studied use of the member, so as to favour relaxation or elongation of contracted parts, and the acquisition of strength in those which are weakened. By the use of these means, the greater number of paralytic or spastic contractures acquired during childhood and adolescence may be obviated or arrested, the exceptions being cases in which a more than usually severe paralysis, or an active tonic spasm affects some or all of the principal muscles. In the latter class of cases, the contracture rapidly attains its full development.

So long as the medical practitioner has simply to do with paralysis or spasm, and an amount of contraction susceptible of yielding to the pressure of the hand, or even to the moderate use of some mechanical contrivance calculated to maintain the member in a proper position, the rational surgeon will not affirmatively entertain the question of division of tendons, for division of muscles affected with paralysis or spasm is no cure for these diseased states.

In many instances, the contracted muscle is a healthy muscle, shortened merely from want of antagonists, and it is inconsistent with sound therapeutics to endeavour to reduce by tenotomy a healthy muscle to the condition of a paralysed one. Moreover, the apparent benefit derived from division of the tendon of a muscle, itself healthy, but possessing an inconvenient (?) activity, is only temporary, for after a few months' time the muscle re-contracts, unless the practitioner have determined to prevent the healthy muscle recovering tone after its division by sedulously keeping the ends of the divided tendon

as far as possible asunder, an effort often frustrated by nature causing slow contraction in the newly-interposed or uniting medium. In such cases, instead of operation by tenotomy, we are bound to exhaust all legitimate modes of treating the paralysis, remembering that during childhood and adolescence there is ever hope of at least partial recovery from the paralysis. When the paralysis may be justly termed incurable, mechanical support by means of elastic substances, steel springs or caoutchouc, may aid the weak member to perform its office.

The objections made in a former paper (p. 28 of the present volume) to unnecessary tenotomy in slight congenital deformities apply to unnecessary division of tendons in contractures arising from paralysis, spasmo-paralysis, and spasm. It may here be observed of such cases, that when the operation has been prematurely and unnecessarily performed the *propter hoc* has been mistaken for the *post hoc*. It has often happened, that whilst the patient has been under treatment by tenotomy and subsequent mechanical treatment, during a period of ten or twelve weeks or months, that the paralysis of the non-divided muscles has partially or wholly disappeared, justifying the opinion, that the same period occupied by proper treatment, without preliminary tenotomy, would have equally witnessed cessation of paralysis and consequent cessation of contracture and deformity, by restoration of antagonistic and associated action of the respective muscles of the part. That this result would have ensued is not merely an opinion, but matter of observation in similar cases treated without tenotomy.

Until the age of ten years, varying according to constitution and growth, the majority of paralytic and spasmic contractures may be subdued by mechanical and physiological means; and as after preliminary tenotomy the same mechanical and physiological treatment is for an equally protracted period desirable—*i. e.*, until recovery from the paralysis or spasm takes place—unnecessary tenotomy has not really the merit of saving time, for although at first a rapid alteration of the form or mobility of the affected articulation is produced, which operates favourably upon the minds of the bystanders, it is often a delusive benefit, often acting injuriously by detracting attention from remaining modes of treatment.

Division of tendons in paralytic and spasmo-paralytic contractures is indispensable when the contracted muscles have undergone *structural* shortening, a state in which, besides constant contraction of collective muscular fibres, whether resulting from loss of antagonists or spasm, the individual muscular fibres, after the lapse of several years, probably not less than six or seven, more rapidly during childhood than after puberty, have undergone an interstitial change, the nature of which is imperfectly known, apparently consisting of adhesion amongst themselves, degeneration, atrophy, adipose transformations, which renders the aggregate muscle incapable of elongation by ordinary moderate mechanical extension. This state of structural shortening

of muscle may be known by long duration of the contraction, by the sensation of rigid, inelastic, cord-like resistance offered to the hand of the examiner, and by the shrunken, wasted condition of the muscle, volition not necessarily being entirely absent in it.

Those who are familiar with the physical condition of the parts concerned in deformities, have no difficulty in recognising when structural shortening of muscles does or does not exist. I would suggest to those who are not adepts, that if after employing as tests the signs of structural shortening which I have enumerated, they will remain in doubt whether this condition is present; they may, in those cases in which no objection to anæsthetic agents exist, subject the patient to the influence of ether or chloroform inhalation. During insensibility a contracted joint becomes readily flexible, so long as structural shortening does not exist. If the muscular fibres have undergone interstitial degeneration and shortening, the joint will not be bent or extended, as the case may be, without violence and laceration of fibres.

The advantage of division of tendons in such cases—structural shortening of muscles and consequent limitation of movement and function of articulations and deformity—cannot be exaggerated. These are the cases in which the greatest permanent benefit accrues to the patient, and to the reputation of the surgeon. The previously contracted, *structurally shortened* muscles, evince comparatively little tendency to re-contraction after operation.

On the contrary, especially during childhood, when the contracted articulation can be moved through a considerable portion of the natural range of movement, when the resistance is elastic instead of being rigid and unyielding, when in the foot, for example, the patient, by throwing the weight of the trunk upon the member, as in the act of lounging in fencing, can bring the knee over the point of the foot (toes), when the atrophy of the member does not amount to, or approach to, a loss of one-sixth (it is often as great as one-fourth) in its circumference, tenotomy is not required.

The means by which, in such cases, tenotomy is superseded, are those already recommended—diligent, painstaking manipulations, appropriate mechanical supports, and appropriate exercise.—*Lancet, Nov.* 28, 1857, *p.* 529.

60.—ON LUXATION OF THE INFERIOR MAXILLA.

By Dr. E. WHITTLE, Senior Surgeon to the South Dispensary, Liverpool.

[The simple mode of reducing this dislocation recommended by Nélaton, seems to be not generally known in this country. It is infinitely preferable to the old plan on account of the facility and rapidity in executing it.]

As to the *modus operandi*, the patient is seated, and directed to

open the mouth widely; the operator then rests the index and middle fingers of each hand upon the mastoid process on either side, and presses the thumbs against the prominence formed on either cheek by the point of the coronoid process; then a very moderate degree of pressure being applied, the condyles slip back into the glenoid cavities. If we proceed to analyse the steps of this method, as compared with the one generally adopted, we shall find a vast difference in the way the muscles are dealt with.

With regard to the position of the condyle: by pressing the molar teeth downwards and backwards, the chin is brought upwards, the prominent edge of the posterior surface of the condyle is pressed directly against the transverse root of the zygoma, and has, in fact, to be forcibly pushed round the obstruction, against the full antagonism of all the muscles attached to the condyles and coronoid processes, viz., the temporal and masseter, both powerful muscles, and the two pterygoids. On the other hand, by depressing the chin, as Nelaton recommends, the condyles are brought slightly forward, and present not an abrupt but sloping surface posteriorly to the transverse root of the zygoma; thus by the first step in the operation, viz., opening the mouth, the resistance to be overcome is materially lessened. We have yet to consider the condition of the muscles. While the condyles lie in their abnormal position, the muscles attached to the condyles and coronoid processes are all in a state of relaxation, (because the points of insertion are approached to the points of origin,) except the posterior fibres of the temporal and masseter; these latter, and indeed the whole of the deep layer of the masseter, materially help the reduction, while the remaining fibres of the temporal, the superficial layer of the masseter, and both pterygoids are quite neutralised, the motion given to the head of the bone backwards, does not act in opposition to their line of traction on the bone, but at right angles to it. The temporal and superficial fibres of the masseter draw the bone upwards and a little forwards: now the manœuvre of reduction merely pushes the line of traction of these two muscles two or three degrees backwards, to that extent altering only the direction of their force, and not pushing directly against it. The line of traction of the pterygoids is almost directly inwards, and the reduction of the bone would in their case merely direct the line of traction two or three degrees backwards.

Contrast this state of the muscles with the violent resistance we have to encounter when we provoke the energetic action of the powerful masseter muscles, and the temporal muscles on either side; the whole united force of which muscles we have to overcome by pressing the thumbs against the molar teeth, a proceeding which, in muscular men, is only accomplished sometimes with great difficulty and after repeated efforts. The only objection I have heard made to Nélaton's plan is, that the cheeks may be injured by pressing them against the sharp point of the coronoid process. In making this objection, it is

forgotten that the sharpest edge of the coronoid process is directed backwards towards the condyle; besides, the anterior edge is well cushioned over by the attachment of the temporal muscle. In three cases, in which I had the opportunity of corroborating M. Nélaton's experience, I can only say that none of the patients complained of any inconvenience in this respect.—*Liverpool Med.-Chirur. Journal, Jan.* 1858, *p.* 37.

ORGANS OF CIRCULATION.

61.—ON THE USE OF THE CHLORIDE OF ZINC AS A CAUSTIC IN CASES OF ANEURISM BY ANASTOMOSIS.

By James F. West, Esq., House-Surgeon at the Queen's Hospital, Birmingham.

[In Mr. South's excellent translation of 'Chelius' System of Surgery,' (vol. ii. p. 283,) the application of a paste of caustic potash in an aperture of sticking plaster is recommended as the best means of destroying nævi, especially when the swelling is broad and superficial, when the knife is not applicable. Mr. West thinks it however far inferior for this purpose to the chloride of zinc, applied as directed by Mr. Ure.]

Mr. Fergusson remarks that "the caustic potash has been used with good effect;" but after mentioning the cases in which it is most suitable, he concludes by saying that he thinks the strong nitric acid is to be preferred to it. Both Professors Miller and Lizars speak of it as a dangerous remedy in consequence of the great probability of the occurrence of hemorrhage on the separation of the sloughs formed by its application. To this objection, however, the chloride of zinc is not liable: in the cases in which I have observed its employment, there has been no loss of blood—a dense white eschar has formed in the course of a few hours, which, on separating, in from four to seven days has left a healthy granulating surface (perfectly free from all trace of erectile tissue,) has in a comparatively short space of time cicatrized and left a firm white indurated structure.

Nitric acid, though recommended by many surgeons of repute, has not, according to my experience, been at all satisfactory in these cases. It removes the integuments but does not attack the mass of enlarged and tortuous capillaries which lie beneath them, and on the contrary, it has frequently seemed rather to cause their augmentation than their obliteration.

In the case of the first child whose history I subjoin, the nitric acid was freely applied, but, nevertheless, the slough formed was perfectly superficial and the diseased growth not in the least implicated. The muriatic acid produces the same insignificant effect. Mr South in relating a case in which he had recourse to it, for the removal of a nævoid growth which implicated a great part of the scrotum of a child,

found, that instead of "producing constriction of the vascular mass, it had only the effect of exciting irritation and hastening the growth, so that it soon acquired the size of an orange." On the reapplication of the remedy, the result was as unsuccessful as on the previous occasion. Nitrate of silver has according to my knowledge been even less advantageous than the acid or alkaline caustics. It is equally painful, has the same tendency to cause hemorrhage on the separation of its sloughs, while it is even less certain and uniform in its action than they are.

Lastly, the arsenical and mercurial caustics are totally inapplicable in consequence of the danger of their absorption into the system, an evil which might be anticipated in its fullest extent in the infants and children on whom we are most commonly called to operate, as it is in them that the disease is in the majority of instances found.

The merits which I claim for the chloride of zinc as a caustic, in cases of aneurism by anastomosis, are, that it is more powerful in its action, that it penetrates more deeply into the diseased tissues than any other caustic with which we are acquainted, and that above all others it is preferable in consequence of its property of coagulating the blood in the tissues surrounding the part to which it is applied; and thus it not only prevents hemorrhage at the time when the slough is thrown off, but also, through the formation of firm fibrinous coagula in the mouth of the vessel leading to the affected part, it obviates the possibility of a recurrence of the formation of erectile tissue in it. As a substantive proof of the efficacy of this mode of treatment, I am enabled by the kind permission of Mr. Langston Parker and Mr. G. B. Knowles, surgeons to the Queen's Hospital, to append the particulars of two cases which have been treated by the chloride of zinc, and in each of which a successful issue has been obtained.

Case I.—Kate Weston, a healthy child, three months old, was admitted into the Queen's Hospital, under Mr. Knowles, February 23rd, 1857.

Her mother, a sensible woman, states that from the time of birth, a small red spot, scarcely larger than a pin's head, has existed at the back of the child's neck on the right side just below the ear; that for the first few weeks it appeared to retain its original size and appearance, but that lately it has greatly increased both in prominence and extent. She does not attempt to assign a cause for this mark, and says that her other children have no spot or blemish about them.

On examination there was also discovered another nævus of considerable size, which from its being almost colourless, soft, elastic, and subcutaneous, had attracted the mother's attention in a very slight degree. It was situated on the anterior aspect of the left side of the chest immediately below the clavicle, and an inch from the left border of the sternum.

It did not implicate the skin, but was confined to the subjacent areolar tissue; it was as large as a walnut, having an irregular ill-

defined margin, and presenting a doughy elastic swelling, which became prominent and livid whenever the child cried. Pressure upon it caused a material reduction in its size, but did not completely evacuate its contents. The spot before-mentioned, was a true nævus maternus—of circular form, as large as a sixpence, with clearly defined margin, slightly raised above the level of the surrounding skin—of a bright red colour, and presenting numerous papillary elevations on its surface; it was situated immediately behind and below the mastoid process of the right temporal bone, in the fleshy part of the back of the neck.

To this spot strong nitric acid was liberally applied by means of a glass rod on the 25th of February, and a white eschar was formed by its means. The child cried for about an hour, and subsequently appeared to be free from pain: a bread poultice was then applied.

March 1st. The slough has not yet come away, although it appears to be separating at the edges. The centre is still red; the colour of the nævus being distinctly visible through the white thin slough. The child is not very peevish.

March 2nd. A slough as large as a sixpence came away, but it was evident on its removal that the integument alone had been affected by the caustic, as the anastomosing arterial twigs appeared even more distinct and vivid than before.

March 3rd. At 3 p.m., a paste composed of one part of chloride of zinc and four of flour was applied to the nævus for the thickness of a quarter of an inch, the surrounding skin being protected by plaster spread upon leather. On its application the child became very irritable, but in a few minutes appeared to have no sensation of pain.

At 9 p.m., the paste, which had formed a dense white slough, as large in extent but thicker than a shilling, was removed—no blood was lost: a poultice was applied.

March 9th. A slough as large as half a nutmeg came away yesterday afternoon: no blood was lost on the removal; the surface of the ulcer is quite pale and free from all nævoid appearance, but the surrounding skin presents a blush of slight inflammatory redness. The child is not at all feverish. and only fretful when the ulcer is dressed.

March 16th. The ulcer is quite healed; a slight depression of the size of a sixpence marks the site of the nævus. but there is no unnatural vascularity in the part, and the adjacent structures appear firm and healthy. The child does not appear to have suffered in condition or appetite.

March 20th. Nitric acid was applied to the surface of the cutis over the large pulsating tumour on the chest, and a white superficial eschar as large as a half-crown formed by it.

March 21st. At 11 a.m. the chloride of zinc paste made of the same strength as before was applied, the neighbouring parts being protected in the usual manner. It was allowed to remain on till 11 p.m. (twelve hours) when a large dense slough had formed, which appeared to implicate the whole of the diseased structure.

March 23rd. The slough, which is as big as a walnut—white and dense—is beginning to separate, a line of demarcation being already formed. The child appears to suffer but little.

March 28th. A slough not smaller than a halfpenny and weighing at least a drachm, separated to-day, leaving a reddish granulating surface, and without causing the slightest loss of blood.

April 3rd. The ulcer caused by the paste is filled with pale but healthy granulations, and there is no inordinate vascularity except at two points, of the size of a pea, from which there is an occasional oozing of bloody serum. The venous lividity and congestion of the surrounding skin is quite gone. The child's health remains good, and she is not at all irritable.

April 15th. The ulcer on the chest is quite healed; the cicatrix is dense and almost white, though when the child cries it becomes slightly turgid and red.

May 23rd. The cicatrix on the chest is smaller, paler, and more firm than the one on the neck; both, however, appear quite free from all trace of nævoid condition, and they are but very little congested when the child cries or makes any active exertion. She looks as well as she did before the treatment was commenced, and, in fact, can scarcely be said to have lost flesh or to have suffered any impairment of health during the whole of the period.

[In the second case mentioned the nævus was as large as a hen's egg, and situated on the right side of the forehead. The patient was a pale but healthy girl of twelve years old. The surface of the tumour having been denuded of epidermis by a blister, the chloride of zinc paste (one part to three of flour) was applied to the depth of a quarter of an inch, the circumjacent parts being protected from its action by a strong solution of gutta percha in chloroform. In thirteen hours the paste was removed; the surface of the nævus was then white and dry. It caused great pain for the first few hours, but this gradually abated. In two days a slough came away. In eighteen days it is reported that all trace of the nævoid structure seems removed, and a healthy granulating surface exists. In another week the ulcer was almost cicatrized, a very slight scar remaining.]—*Midland Medical Journal, Vol. I., p. 240.*

62.—*More than a Hundred Nævi on the same Infant.*—Nævi, as is well known, not unfrequently occur two, three, or more on the same subject. A case, however, in which their number has exceeded what we have either ever witnessed or noticed on record has been under observation amongst Mr. Hutchinson's out-patients, at the Metropolitan Free Hospital, for some months past. When first brought, the infant, a healthy boy, was three weeks old. His scalp, face, shoulders, body, and upper parts of the anus, were literally covered by a scattered crop of bright cutaneous nævi. These varied

in size from a fourpenny-piece to a split pea, or even smaller, but the smallest, from the peculiarly bright and florid hue, were very conspicuous. Some of the largest were on the face and scalp. All of them were well circumscribed, and quite distinct from each other, and all appeared to be limited to the most superficial layers of the skin. The infant's appearance was very remarkable. Its mother stated that a few of the marks had been noticed on the day of birth, but that these had increased in size, and that many others had since come out. During the first week or two of her attendance at the hospital, the efflorescence continued, and on the third visit, an attempt being made to count them, they were found to number upwards af a hundred and fifty. The largest were now about the size of sixpences. The treatment pursued consisted in applying a little of the compound iodine ointment once or twice a-day to the spots separately, and in the course of a few weeks this appeared to be exerting a very perceptible influence. It was steadily continued, and now, after the lapse of six months, not more than a dozen remain, and those mostly on the scalp. It is intended to apply the nitric acid to these remaining ones, should they not diminish. The infant has retained excellent health, and the ointment (which is a favourite with Mr. Hutchinson for this purpose) has never caused any material irritation to the skin.—*Lancet, Jan.* 16, 1858, *p.* 63.

ORGANS OF RESPIRATION.

63.—ON A NEW TROCAR FOR PARACENTESIS THORACIS.

By Charles Robert Thompson, Esq., Westerham.

Although there exists considerable difference of opinion as to the amount and nature of the risk incurred by the admission of air into the pleural cavity in performing paracentesis, there can be no question that it is desirable to avoid such an accident, as being never beneficial, and often productive of bad results.

With this view several instruments have been from time to time invented; but there has been a want of simplicity, or a doubtful efficiency in them; so that many surgeons still use the ordinary trocar, trusting to such a clumsy expedient as putting a finger over the orifice, during inspirations, to keep out the air, or leaving it to enter freely at the latter part of the operation.

The instrument which I have now to describe, will, I believe, fulfil the required conditions.

Fig. 1.

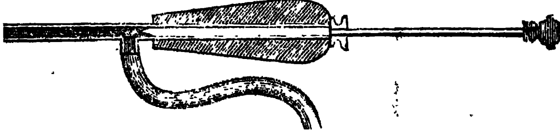


It consists of a cylindrical silver canula, about four inches long, and of the diameter generally used for this operation; into which opens, at near its middle, a short silver conducting tube of the same calibre, to which a piece of india-rubber tubing, about a foot long, is attached by a screw. In this canula plays a solid steel piston, with a trocar point; its body being of such length that when fully pushed forward (as in Fig. 1) its point protrudes sufficiently from the canula, and its other extremity seals the entrance of the conducting tube; and when fully withdrawn (as in Fig. 2) it retires so far as to open the conducting tube. This piston must fit the canula so perfectly as to be air-tight when greased. The little cap of the canula unscrews, to admit of the removal of the piston for greasing or cleaning. The outer half of the canula is mounted in a solid wooden handle, to give a firm grasp of the instrument.

The mode of using it is as follows:—

Having well greased the piston, draw it back (as in Fig. 2) and, placing the end of the elastic tube into a basin of water, withdraw the air from it by suction at the end of the canula, and when the water reaches the lips push forward the piston. The elastic tube is now filled with water, which cannot escape, and the instrument is ready for use. When it is plunged into the chest, pull back the piston so as to open the conducting tube; when the fluid follows, and directly it meets the water in the tube, a syphon is formed. The end of the tube should be kept under fluid during the operation. If it is required to stop the flow, either during a fit of coughing or to change the receiving vessel, it can be done instantaneously by just advancing the piston sufficiently to cover the conducting tube.

Fig. 2.



The following appear to me to be advantages gained by this instrument:

1. That no atmospheric air can gain admission during the operation; and by making a valvular opening, and careful pressure as the trocar is withdrawn, no air ought to be admitted after its withdrawal.

2. The syphon action would, I imagine, assist in keeping up a continuous flow of fluid, so long as the wall of the chest contracts, or the compressed lung re-expands.

3. The power of stopping and re-admitting the fluid at any moment through the conducting tube, by a simple movement of the piston.

4. That if the tube should get blocked by lymph, or anything should arise during the operation to make such a course desirable, the instrument may be converted into a common open canula, by unscrewing the cap and removing the piston.

This instrument may be conveniently applied to other purposes for which the common trocar is now used, as in tapping hydrocele, hydrocephalus, large chronic abscesses, &c. For paracentesis abdominis it is made of larger size, with an elastic tube three feet long. Here it presents great advantage over the ordinary trocar, by conveying away the fluid into the receiving vessel without any splashing, unseen and unheard by the patient; and by giving the power of so easily checking the flow by the piston, when required either on account of faintness or for the purpose of changing the vessel.

The instrument has been accurately made for me by Mr. Ferguson, of Giltspur-street, and it is very portable, and not expensive.

I have not yet had an opportunity of testing its efficacy on a living thorax, and should be much obliged to any surgeon who will try it, and let me know how it works.—*Med. Times and Gazette, March* 27, 1858, *p.* 329.

ALIMENTARY CANAL.

64.—NEW OPERATION FOR HARE-LIP.

By Dr. ALLEN DUKE, Surgeon to the Chichester Infirmary.

Having for a long time considered the blemishes arising from the use of pins, however early they may be removed, as most objectionable in operations for hare-lip, as well as for those for cancer and other operations on the face, I would, as a substitute, strongly advocate the use of *internal sutures*, and the following mode of operating for hare-lip:—

The edges pared, not in the usual way, but by an oblique incision from before backwards, slightly concave, and the reflecting bands of mucous membrane, freely divided, are to be brought neatly together by two or more sutures, each armed by two curved needles, which are to be introduced immediately under the skin, carried completely through the remaining thickness of the lip, and firmly tied *internally*.

To facilitate the removal of the two upper ones, the ends of the sutures should be brought out at the angle of the mouth, and secured externally by adhesive plaster, strips of which are to be applied the more firmly to bring and retain in contact the skin. The sutures may be safely removed in the course of a few days. Should there be a fissure of the jaw, and any portion unnaturally project. it should not, as is usually recommended, be entirely cut off, but partially severed, the edges pared on both sides and neatly adjusted by sutures, in order to fill up the vacancy and preserve the natural rotundity of the fore part of the jaw previously to operating on the soft parts.—*Lancet, March* 20, 1858, *p.* 287.

65.—ON SUDDEN ACCUMULATIONS OF FLUID IN THE SUBMAXILLARY DUCT.

By Jas. Hakes, Esq., Surgeon to the Northern Hospital, Liverpool.

[Diseases of the salivary glands are little noticed by medical writers, but in fact, with the exceptions of that form of inflammation of the parotids, called mumps, and after the administration of mercury, we seldom see them affected. Suppuration is very rare, as are also tumours, which, moreover, generally affect these glands only secondarily. Cretaceous deposits and obstructions of their ducts, from these or inspissated secretions, are sometimes found. Ranula is now supposed to be an encysted tumour, having no relation to the submaxillary gland, other than that of propinquity. A second form of this may occur in the mylo-hyoid space, not projecting so much into the mouth as externally.]

These are the only fluid tumours occurring in the mouth in connection with the salivary apparatus, of which I find any mention in the works of surgical writers. There is however another, remarkable in the mode of its occurrence, with which it is important that every surgeon should be acquainted, namely, a collection of fluid suddenly developed by an obstruction of the salivary duct. I have not been able to meet with any case recorded, nor have I read any remarks which would suggest to me the idea that it was known to surgeons. I can scarcely suppose that in the extensive practice enjoyed for many years by the eminent men who have written their experience for our benefit, examples of it have not now and then occurred, seeing that in the past few years I have witnessed it in three or four persons. But if so, it is difficult to conceive why they have not published the cases, for they cannot fail to make a great impression on the beholder, and ignorance of their existence may place a surgeon in a dangerous position.

A consideration of two or three well-known facts, cannot, I think, fail to make us regard the frequent occurrence of this sudden accumulation, as by no means improbable, and also lead us to anticipate the time at which they might be expected to take place.

The existence of salivary concretions is one of these facts; it must not, therefore, surprise us if at times they occupy and block up the small ducts which carry off the saliva from the glands. Again, the secretion of saliva is acknowledged to be pretty copious. Authorities vary as to the quantity secreted in twenty-four hours, some stating the amount as low as twelve ounces, others as high as eighteen. Though the secretion proceeds constantly, many things are known to increase the amount and rapidity of production, and especially the presence of food in the mouth, and the process of mastication during a meal. We have then but to suppose obstruction of the duct to take place about the time of taking food, and we have all the circumstances present necessary for establishing such an attack, if only the ducts are

capable of sudden and rapid dilatation ; this can be proved by experience alone, and however much we might feel inclined to say with Mr. Erichsen, when speaking of ranula, "It is not easy to understand how so small a duct can be dilated to so large a size as is occasionally attained by these tumours," I think the perusal of the following cases will leave no room to doubt the fact.

The first time that I saw this disease was in the person of a gentleman living at St. Michael's Hamlet, near Liverpool, to whom I was summoned in great haste one evening. He had been taking tea, and before the meal was over began to feel uneasiness about the mouth, and felt a swelling in the mouth and under the ramus of the jaw, in the region of the submaxillary gland, which increased so rapidly as to alarm him. While he was awaiting my visit, he had the swelling rubbed, with the effect of causing an escape of fluid into the mouth, and a subsidence of the swelling in the neck, so that on my arrival I could perceive nothing beyond a little fulness in the submaxillary region. Continuing the friction. the swelling disappeared I am not aware that he had ever previously suffered from the complaint, or since had any return. I made no examination of the duct but by the eye, and did not see any calculus.

The second instance occurred six or seven years ago, in a youth when only six or seven years old. He was eating his dinner, and in the midst of it began to complain of stiffness of the mouth and difficulty of deglutition ; his mother very soon noticed a distinct swelling under the jaw. As some of the inmates of the house were at the time suffering from mumps, this was supposed to be a sudden attack ; but on account of the suffering it caused, and its rapid growth, I was sent for. On examining the orifice of the submaxillary duct, a small white concretion, not larger than a pin's head, was discovered obstructing its orifice ; this was easily removed, a quantity of saliva escaped into the mouth, and the patient was immediately relieved. A year or two afterwards, while he was at tea, the same thing recurred, but on this occasion the calculus was larger, and rather irregular in shape. After endeavouring for some time to remove the calculus, but failing, partly on account of the nervous restlessness of the lad, I fixed it by means of a pair of bulldog forceps, and then cutting through the duct beyond the calculus, removed it, together with the orifice and enveloping portion of the duct. He has had no return since, but his mother informs me that he sometimes feels a little uneasiness in the situation of the gland, and gets rid of it by pressing underneath the margin of the jaw, which seems to displace something.

My third case, which occurred some years since, was in some respects the most remarkable of all, and though I made no notes of it, was accompanied by circumstances sufficiently ludicrous to fix it indelibly in my memory.

A prostitute called on a surgeon then living in Liverpool, about ten o'clock in the morning, for his advice. She stated that while she was

taking her breakfast, she began to feel uneasiness in her mouth, to which was very soon added swelling under the tongue and under the jaw. As she continued eating, the swelling increased, and her sufferings became very severe. When she reached his house, there was a considerable swelling both in the mouth and under the jaw; she complained of intense pain about the jaws and neck, a sense of suffocation and difficulty of swallowing, and her speech was materially affected. He looked into her mouth, and seeing there was some slight ulceration of the tonsils, was seized with the impression that the internal carotid artery had become perforated by an extension of the ulceration, and that the blood, though prevented by coagula or some other cause, from escaping into the mouth, was being pumped into the cellular tissue of the neck, which accounted to him for the progressive increase in the size of the swelling as he watched her.

Overcome with this idea, his consternation was extreme, and his looks and manner communicated his alarm to the patient. No wonder, therefore, that the summons to his assistance was urgent, and would brook no delay, I took with me the needful instruments for ligaturing a vessel, though pretty confident that I was going to see a case like those I have already related. On reaching the surgeon's house, I was hurried down to his scullery, and there, to all appearance, he was endeavouring to destroy a young woman, partly by throttling, and partly by drowning: they were both standing near the sink, her head being bent down beneath a tap of cold water, the full stream from which was pouring over her bare neck and shoulders, and saturating the upper part of her dress, while he seemed to be strangling her with his fingers, though he informed me he was restraining the hemorrhage by compressing the carotid arteries. It was not without misgivings that he permitted me to release the poor wretch from the water-tap and his fingers, and when, having looked into her mouth, I recommended an incision to be made into the swelling, I believe he thought I was soliciting him to commit murder. However, his agitation after a time subsided; he was able to take a calm view of the case, and saw the correctness of my diagnosis, and opened the swelling freely in the mouth, from which there escaped at once several ounces of viscid saliva, which of course quite relieved all her distress, and removed all the swelling. We looked at the orifice of the submaxillary gland, but could not find the cause of the obstruction there. I had no probe small enough to pass along the duct.—*Liverpool Med. Chir. Journal, Jan.* 1858, *p.* 29.

66.—*Soft Sulphur for Stopping Teeth.*—M. H. HENRIOT has successfully employed soft sulphur as a substitute for the numerous cements used for decayed teeth. This substance, which acquires in a little time after its introduction into the cavity, a considerable degree of hardness, is insoluble in all bodies in the cold. It is not attacked

by any of the alimentary substances or dentifrices, and is easily and quickly applied. All that is necessary is, to put some fragments of sulphur—or better, some washed flowers of sulphur—in a glass tube sealed at one end, heat it over a spirit lamp, and pour into cold water. The sulphur should be heated to a temperature above 390° F., when we obtain, on pouring into cold water, a spongy mass, brown, soft, and elastic, which is called soft sulphur. It is known that the melted sulphur, if the temperature be sufficiently high, becomes thick and viscous, which is then again rendered fluid. The preparation thus obtained is introduced in the form of little balls, which are pressed into the decayed tooth. The soft sulphur may be prepared in two minutes. *Journ. des Connais. Méd., and Pharmaceutical Journal.* —*Dublin Hospital Gazette, Jan.* 1, 1858, *p.* 15.

67.—ON THE RADICAL CURE OF REDUCIBLE INGUINAL HERNIA.

By T. Spencer Wells, Esq., Lecturer on Surgery at the Grosvenor Place School of Medicine, and Surgeon to the Samaritan Hospital, &c.

[Mr. Spencer Wells was the first surgeon who performed Wutzer's operation in Great Britain. It has in his hands been almost uniformly successful. Some of his cases have now passed ten, nine, seven, and three years, without a sign of return. He says on this subject :]

I think I may say, that the experience of British surgeons, so far as it has gone, speaks strongly in favour of the operation, and if we look to the continent we find a much larger store of recorded experience. Wutzer, in a letter to me in 1853, says, "I am not able at present to give you the statistical results of all the cases upon which I have operated, as I have not time to collate them. I can now only say that, since the autumn of 1838, I have repeatedly practised my operation in the clinique every session before many witnesses, and that I have never seen severe peritonitis follow it, still less any fatal result. All those operated on have not been cured. In several, relapse followed, but this was traceable either to the patient leaving off the truss too soon, or undertaking very hard bodily labour soon after the operation." Professor Sigmond, of Vienna, informed me that he had performed the operation nineteen times in the great hospital of that city, with complete success in fifteen cases. No death happened, but in two cases there was some gangrene of the integuments, and in two relapse occurred.

Last autumn I was in Munich, and I called on Professor Rothmund, who has a larger experience of the operation than any other surgeon. I saw him perform the operation in one case, and saw two men upon whom he had operated, on one three days, and on the other ten days before. I had a long conversation both with the Professor

and his assistants. They said the increasing number of patient coming for operation was the best proof of its safety and success. At first Rothmund found it difficult to induce ten patients to submit to it in a year. Now they apply every day. They are mostly working men; and one tells the other how he has been cured. On inquiry as to relapse the answer confirmed my previous impressions, namely, that in cases where the canal is not larger than to admit the finger easily, the radical cure may be relied on with almost absolute certainty, and that the probability of relapse increases with the size of the canal and rings. When the rings are very large and the canal very short, the chief use of the operation is to make a truss effective In these cases of widely-dilated rings and short canal my impression was that the operation might be hazardous, but the experience at Munich shows that this fear is unfounded, provided very large cylinders be used, so that the rings are well filled and descent of intestine by the side of the cylinder is impossible. Rothmund has done the operation about 400 times in the Clinical Hospital at Munich, and he told me that he had done it much more frequently in private practice, so that he felt convinced he must have operated a thousand times, and without one fatal result. This, I think, is more than almost any one could say of the most trifling operation. No one could expect to do a thousand operations for hare-lip—to tie a thousand nævi or piles—to remove a thousand small tumours—in fact, do the most trivial surgical operation a thousand times, without some untoward result following, accidentally, in some one case. So that this evidence is very strong indeed in favour of the almost perfect safety of the proceeding.

You see I am anticipating objections already; I do so because there is still so strong and general a feeling among surgeons against the adoption of any operative proceeding whatever for the radical cure of hernia, that I feel it necessary at the very outset to convince you that I am not advocating some novel and dangerous innovation, of the safety and propriety of which I am not fully assured. I have really proceeded with great caution—I may say too great caution—in this matter, under the influence of the general prejudice against any operation of this kind. I was very careful indeed—too careful I think now—in the selection of cases. I waited two years after my first case before I found a second patient—four years after my second before I found a third—willing to have the operation done upon the very qualified manner in which I advised it. I did not venture to urge the operation upon patients. It was only when warmly requested to do it that I consented; and when I read the paper in 1854, I did not advocate it very strongly, but simply asked the members of the society "to consider now far the evidence I have adduced of its safety and success should lead to its further adoption in this country." With further experience, however, and especially since my visit to Munich, I feel much more confident, and take every opportunity, in

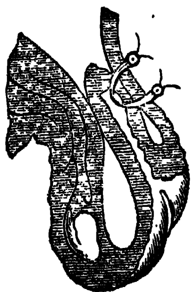
suitable cases, of recommending patients to submit to the operation, and of bringing it before you and the profession generally.

Before showing you the instrument of Wutzer, and the modified instrument of Rothmund, which I now use, it will be well to make you acquainted with the principles of the operation. There are two ways by which the radical cure of reducible hernia can be effected. The sac may be destroyed or closed, or the sac and hernial apertures may be filled up. A great variety of proceedings, with the first object in view, have been adopted from very early periods in the history of surgery down to the present time. Celsus advised incision of the integuments and sac, so as to lay open the sac, and allow it to heal by granulation. This practice was followed so lately as by Pott and Abernethy, but the most dangerous results followed. Then castration was performed in the hope of closing the sac, and it was carried to such an extent in France that it was made penal by statute. This led to what was called the "Royal Stitch," because by leaving the testes uninjured, it "gave subjects to the king." This operation consisted in laying bare the sac, excising a portion of it, and bringing the upper remaining portions together by suture. Then the sac has been destroyed by caustics or the actual cautery. It has been tied close to the ring, after exposure, by incising the integuments. It has been tied subcutaneously by passing pins beneath it. The adhesion of the opposed surfaces of the sac, and consequent obliteration of the cavity, have been attempted by subcutaneous scarification, by acupuncturation, and by the injection of iodine. This injection of iodine is alluded to by Mr. Fergusson in his last edition, as a plan followed in America by some charlatans who attempt the radical cure of hernia by a secret method. Mr. Fergusson seems to think well of it, though it proved very unsuccessful in the practice of its originator, Velpeau. Indeed, any attempt merely to obliterate the sac, putting aside its great danger, is bad in principle, because the mere obliterated sac offers very little impediment to a new hernial protrusion. We must do more than this. We must contract or close the passage through which protrusion takes place. Now all attempts to do this, with the single exception of compression, have been exploded as dangerous or useless. Compression by a truss and well-fitted pad, properly applied, frequently leads to the radical cure of hernia in young persons, by exciting exudation and adhesion. In adults, however, a radical cure is so seldom effected in this way that we all look upon compression after the age of puberty as a simple safeguard against the descent of the hernia, very seldom attempting to produce a radical cure by a truss; and when the attempt is made, it leads in the great majority of cases to disappointment. The principle of the second plan is closure of the hernial canal by a portion of skin, forming a sort of plug pushed into the canal, and made to adhere in its new situation. In other words, the inguinal canal must be closed by a portion of the scrotum pushed into it, and fixed there. It can only be fixed there securely by adhe-

sive inflammation of the serous coat of the sac occupying the canal, and it is necessary for the safety of the patient that the inflammation so excited should not extend to the peritoneum lining the abdominal cavity.

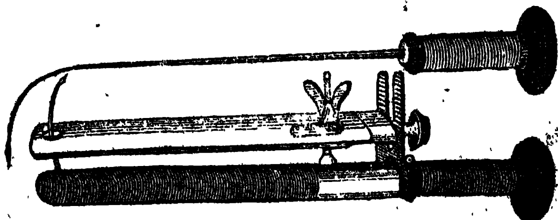
I do not wish to assert that the sac can *never* be pushed before the invaginated scrotum. On the contrary, you may meet with cases where the patient has not worn a truss, in which the sac can be pushed completely into the abdomen. In other cases of old herniæ, where the sac has been thickened and the surrounding cellular tissue is very loose, the same thing may happen, the sac hanging into the abdomen from the internal ring like an empty purse.

I will now show you Gerdy's operation on this subject. The invagination of the skin of the scrotum is the first stage of this operation, as it is in that of Wutzer, but Gerdy merely fastened the plug in its new position by a suture. You see I now form the plug, push the needle along my finger, through the canal and integuments, fasten the thread, withdraw the needle. then make a second puncture, cut off the the thread, and remove the needle. I could do the same thing easily with two needles, one at each end of the thread. In either case this diagram shows you the result, and I feel convinced that it represents



what really happens in most cases, and I suspect Wutzer is right when he says that the puncture of the sac is almost necessary to secure firm adhesion. The result of this suture is just what you would expect—union of the opposed surfaces of the sac at one point. This slight union would appear likely to give way before very slight force. and this proved to be the case, for relapses were extremely common after operations performed in this manner. A more perfect closure of the canal than can be obtained by Gerdy's operation being evidently desirable, various plans were devised for effecting this closure. The diagram below is from an instrument made by Wutzer's own maker in Bonn.

In this diagram the entire instrument is shown below, while above there is a second view of the needle which passes through its centre when withdrawn.



The cylinder, which is intended to take the place of the index finger after it has pushed a plug of scrotum through the ring in the canal, is made of very hard wood of different lengths and diameters according to the condition of the canal in each case. In its centre is a canal through which an elastic steel needle passes, and comes out on the upper surface near the point. Over this a concave cover, also of hard wood, is made rather wider than the cylinder, with an opening to admit the point of the needle, and another opening for a metallic staff which rises from the cylinder near the handle, on which a screw works, by which the cylinder and cover can be screwed together. The handle of the needle can be removed by unscrewing.

After using these instruments of Wutzer's I soon found certain alterations desirable. The needle got rusty, caused undue irritation at the point of puncture, and became unfit for use again. This was soon obviated by electro-plating it. Then the necessity for varying the size of the cylinder in each case was troublesome and expensive. I obviated this, though imperfectly, by rolling strips of adhesive plaster round the cylinder until I made it as large as I desired. But this led to irregular pressure, and in Mr. Stretton's case caused a little sloughing, which though it did no harm might as well have been avoided. The cylinder, too, was too round for the normal shape of the canal. The point of the needle had to be guarded by a piece of cork, which would perversely be knocked off sometimes, and, worse than all, there was nothing to prevent the needle itself from slipping back—the only thing keeping cylinder and cover in their place. I had thought of different plans for correcting these faults, but not of anything so good as those for which we are indebted to Professor Rothmund. It is made, precisely on the same principle as that of Wutzer, and at first sight resembles it exactly in appearance, but the cylinder is oval, not round; the needle is not steel but silver, with a moveable steel point, and there is a knob which can be screwed on after the point is removed, and at the handle there is a spring which is an effectual safeguard against the needle slipping from its place. Lastly, in order to admit of the same cylinder serving for the occlusion of canals of various dimensions it is so made that side pieces of different sizes can be fitted on to the central portion of the cylinder. I have here covers of different sizes, and you see that by altering the side pieces I can make the cylinder quite as large as one needle could fix well. In cases of very large rings and canals it is necessary to have the central piece perforated for two, or even three needles.

Now see what power this instrument gives us. We can alter the dimensions of the cylinder so that while perfectly filling the canal it may push the plug of the invaginated scrotum beforeit well up to the internal ring, and even project some little distance into the abdomen. We can fix the plug much more securely and evenly than by a suture or either of the other compressing instruments, and we have complete command over the degree of pressure exercised.

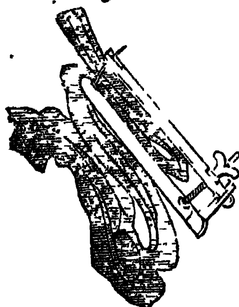
Now for the manner of using the instrument. I need hardly say that the patient's bowels should be opened a day or two before the operation, and the rectum cleared the same day by an enema of warm water; the bladder is emptied, and of course the hernia returned if it be down. This being done you place the patient on his back, with the shoulders raised, the thighs semi-flexed, and the knees separated, just as if you are about to reduce a hernia by the taxis. You place yourself on the side you are about to operate on.

If you can use right and left hand equally well, you may use the left forefinger for invaginating on the left side, and the right to hold the instrument—the reverse for the right side. But the left finger will do for invaginating on either side very well. You see I operate on the left side—so I stand on the left side of the patient. I place my left forefinger on the scrotum, about an inch below the external ring, and then push a fold of the scrotum before my finger with a little rotatory movement slowly and steadily into the canal, keeping the palmar surface of the finger turned forwards and a little outwards, until it is well under the tendon of the external oblique, and the plug of scrotum is well pressed up to, or through, the internal ring. If you place one forefinger on the abdomen, just over the internal ring, while the other is in the canal beneath the tendon of the external oblique, you will feel the tendon very distinctly. As you move the finger backwards and forwards it rolls over the tendon. You should accustom yourselves to feel this, because it is the test by which you know and can be certain that you are well in the canal, and when you have introduced the cylinder that it is in the canal, and has not slipped anterior to it. When you are quite sure that your finger is in the canal, the next thing is to get the cylinder into the place of the finger, and then to fix it there by the needle. To do this you take the cylinder with the needle passed within it as far as you can without permitting the point to project, and hold it in the right hand with the thumb before the screw, the forefinger and second finger on either side of the prong which supports the cover and the ring and little finger on the under side of the cylinder. Then bend the left fore finger a little, draw it forwards and slip the cylinder along its dorsal aspect at the same time as the finger itself is being withdrawn. This is the most important step of the whole operation, and the only step which is at all difficult. Without care the plug may follow the finger. Without care the cylinder, instead of slipping beneath the tendon of the external oblique, may slip between it and the integument. You must be very careful that this does not occur, by feeling, as you felt when your finger was in the canal that the tendon rolls over the cylinder. If you do not feel this, and if the cylinder moves freely beneath the integument, you may be quite sure it is not in the canal and you must begin again. I wish particularly to guard you against this mistake, because I *know* it has been made at least once, and I *suspect* oftener. If you feel the tendon rolling over the cylinder you

may be quite sure it is in the canal, and the end well up to the internal ring. To fix it there I have only to push on the needle till its point appears through the abdominal parietes, then to put on the cover, and use the horizontal and perpendicular screws until the cover and cylinder are evenly pressed together. Then the point of the needle is unscrewed, the knob put on, the handle of the needle removed, and all is done. You leave the patient with the instrument secured thus.

The whole affair does not take a minute, and as the only part of it at all painful is the simple puncture of the needle, it is quite unnecessary to give chloroform.

This diagram shows what I believe to be the real action of the instrument. Here you see how plug, sac, and integument are fixed and pressed together. In some few cases the sac may be pushed up before the cylinder, in some only a very small portion may be below the needle, and in others it may extend throughout the whole line of compression. If the cylinder fill the canal well the pressure is quite sufficient to cause adhesion behind as well as before the cylinder. Some to insure this have kept up pressure on the cylinder by a compress and bandage: but this is unnecessary, and even injurious, as it leads to inflammation of the spermatic cord.



I should have told you that you should oil the cylinder before using it, or else smear it as Rothmund does with cantharides ointment. Wutzer does not think it at all necessary to remove the epidermis of the invaginated scrotum. He looks upon the adhesion of the sac as the really important part of the operation. Rothmund, however, thinks additional security is obtained by removing the epidermis, and thus procuring adhesion of the opposed surfaces of the plug. He thinks also the irritation of the skin set up by the cantharides hastens the adhesive process in the sac, so that the instrument may be removed as soon as the fifth day, instead of leaving it to the seventh or eighth. He speaks from such very large experience that I feel inclined to follow his practice for the future, although I am sure it is not at all *necessary* to success.

Then as to the degree of pressure you apply with the screw upon the cover—it should be very slight the first day to allow for a little swelling. The next day the screw may be tightened or loosened according to the state of the skin. The patient should be kept in bed lying on his back, with the knees raised by a pillow, and the scrotum supported by a cushion or folded towel or two put between the legs. Every day the cover should be raised, to see whether the pressure is

equal and not too great. If it does not press evenly a little cotton wool may be inserted, or if it press too much at any point this may be raised by a little cotton put near it.

About the fourth or fifth day you see a little inflammatory redness and swelling round the needle puncture and commencing suppuration. On the sixth or seventh some serous fluid begins to escape round the end of the cylinder. This shows that the epidermis is separating. There is more purulent discharge from the puncture, and the instrument may then be taken away by withdrawing the needle, and carefully removing the cylinder. You will find that the skin of the scrotum may be pulled tolerably hard without yielding at all, showing that pretty firm adhesion has taken place. If it appear to yield on pulling slightly it would be well to replace the instrument for two or three days longer.

The after treatment will vary a little, according to your desire to produce adhesion of the opposed surfaces of the plug to each other or not. Wutzer filled the cavity left by the withdrawal of the cylinder with charpie, dressed the puncture simply, and then put on a common bandage. Rothmund endeavours to obliterate the cavity. He keeps the patient in bed, raises the scrotum by a suspensory bandage, keeps off the pressure of the bed-clothes by a cradle, applies simple dressing to the puncture, and over this a graduated compress which is made to exert some pressure and keep the two sides of the cavity together by a common figure of eight bandage. The bandage is changed as often as it becomes dirtied by the secretion, and is carefully reapplied. It requires from twelve to fifteen days to secure obliteration of the cavity and cicatrization of the puncture. As I said before, it is only Rothmund's great experience which would lead me to think much of the importance of this obliteration. I tried it in my second case, but no union took place, and in cases where union has taken place the condition of parts a few months after the operation has been precisely similar to those in which Wutzer's practice was followed. Perhaps a middle course will eventually be followed, not filling the cavity with charpie, nor keeping the patient to bed or sofa after cicatrization is firm, and leaving the cavity to close if it will under the pressure of a compress and bandage, but not being sufficiently anxious about it to prolong the confinement of the patient. In either case the inguinal canal is filled by a firm plug, and for some weeks a sort of puckered depression is seen at its mouth, but this disappears after a few months, although the plug may still be felt. After five or six years the plug itself can scarcely be felt, and the most careful examination can hardly detect anything abnormal. Rothmund convinced himself that this could not be explained by the sinking of the invaginated scrotal plug to its former position, by tatooing round the opening of the cavity, and observing that the marks did not change their position as they would have done had the plug descended.

If the pressure has been unequal, or the instrument left a day or

two too long, there may be a little sloughing round the needle; but I have never seen a slough larger than a sixpence, and this only once. The only ill effect of it is some delay in the cicatrization. I believe if there is ever more sloughing than this, it must be from carelessness of the surgeon, or some unfortunate constitutional condition of the patient, or the crowding and defective ventilation of some hospital ward.

Allowing six or seven days for the period the instrument is applied, and from seven to fourteen days more till cicatrization is complete, you should generally prepare a patient to expect a confinement of three weeks to his room. After this he must wear for two or three months a very elastic truss, with a weak spring and large well-stuffed pad. If the pressure is too great, or the pad too small, absorption of the plug may take place, and relapse of the hernia follow. If no truss be worn, the adhesions, which are still soft and yielding, might give way. It is also well to have a suspensory bandage worn as long as the truss, that the weight of the testicles may not drag down the skin of the scrotum to its former position. You should also forbid violent exercise until the truss can be left off. After three months the truss may be left off, and I believe the patient is fully as secure against the occurrence of hernia on the side operated on as on the other side, perhaps more so; in other words, that he has not only been cured radically of his hernia, but he has been protected against its recurrence—he is less likely to become subject to hernia on that side than a healthy man.

We are still in want of knowledge of the precise anatomical conditions resulting from this operation which post-mortem examinations alone can afford.—*Med. Times and Gazette, Jan.* 23, 1858, *p.* 79.

68.—ON THE RADICAL CURE OF INGUINAL HERNIA.

By Holmes Coote, Esq., Assistant Surgeon to St. Bartholomew's Hospital, &c.

[Various means have been resorted to at different times for the radical cure of this disease, as the application of the actual or potential cautery, applying a ligature to the neck of the sac, &c., but in all, the evil generally counterbalanced the good, either from the barbarity of the proceeding, or the destruction of important parts. In the latter case the spermatic cord would be destroyed, and very generally the operation when gone through, produced a cure (if one at all) the permanency of which was very questionable.]

It is within this last few years that the principle of invagination of the integument has been thoroughly applied to the cure of reducible inguinal hernia; and the success which has attended some operations is sufficient to warrant a fuller consideration of the subject. A

portion of the scrotum is invaginated, and thrust by the finger of the surgeon into the inguinal canal, where it is retained some days by a proper instrument until firm adhesions have formed. This plug, which undergoes a fibrous degeneration, and feels like a hard cord, is firm enough to prevent the descent of the intestine, and is, I believe, sufficiently persistent to be of infinite value to the patient. But the French surgeons became fearful of the yielding of the plug; they even asserted that in a few weeks the integument escaped from the canal and resumed its normal appearance. Hence, Gerdy removed from the invaginated integument the cuticle by means of caustic; and Dr. Berne, of La Charité, Lyons, acts yet more deeply by the use of the chloride of zinc: he produces a linear eschar both in the reflected integument and on the corresponding surface of the abdominal parietes, with the idea of making a firm cicatrix.

The invaginated integument is usually held in place by a wooden plug armed with a needle, which is passed through the walls of the abdomen; and Velpeau affirms that this part of the proceeding is not unattended by danger of wounding the epigastric artery. The accident may be avoided by the usual precaution; at all events it has hitherto proved an imaginary danger, although the operation has been performed in this and in other countries above a hundred times.

I will not, in alluding to the success which has hitherto attended the process of simple invagination of a portion of the scrotum into the inguinal canal (commonly called Wützer's operation). refer to cases performed abroad, because it is impossible to ascertain the actual result without having the opportunity of both seeing and conversing with the operator; but I will give a tabular report of cases treated by professional friends in England, for whose accuracy and veracity I offer myself as guarantee.

First, I beg to refer to some cases treated by Mr. Spencer Wells, and related by him in the thirty-sixth volume of the 'Transactions of the Royal Medical and Chirurgical Society.' He states that he has had no unfavourable report from any of the patients upon whom he has operated.

Mr. Vaudin, of Jersey, relates in the 'Medical Times and Gazette,' 1846, the particulars of three cases similarly treated. M. Le T., æt. 42, the subject of oblique inguinal hernia of the left side, underwent the operation, as proposed, by Wützer, May 12. He was confined to bed eight days. On the ninth the instrument was removed, and a compress of oiled lint was fixed over the part by a T bandage. After this he sat at home for three or four days, and then resumed his usual avocation without a truss. On the 14th day the slight wound made by the stilet or needle had healed. Sept. 2, he was in perfect health: there was no tendency to hernia.

Mr. Jones, of Jersey, performed the same operation on N. N., æt. 36, labourer, the subject of oblique inguinal hernia of the right side, of eight years' duration. The integument was invaginated by means

of Wützer's instrument, January 5, 1856. The instrument was removed on the ninth day. Six months afterwards the patient was seen perfectly well.

The same surgeon operated, April 1, 1856, on Thomas G., a Canadian, also the subject of oblique inguinal hernia. Four months afterwards the lad was doing his duty as a cabin boy, without a truss.

I performed the operation, October 7. 1856, on Thomas B., an engineer on board one of Her Majesty's steamers. I did not sufficiently include the internal abdominal ring, which had been drawn nearer to the pubes than normal; consequently, the relief was imperfect, and the plug seemed to disappear. Accordingly, early in December, I repeated the operation, taking care to include the whole length of the inguinal canal. The instrument was removed on the ninth day. Five months afterwards I saw this patient in perfect health.

Shortly afterwards I performed the same operation on a carpenter, in St. Bartholomew's Hospital, with equally favourable results. This patient might at the present time dispense with the truss (about two months after quitting the hospital).

At the British Hospital, Renkioi, Dardanelles, Mr. Stretton operated on Stephanie, a Greek carpenter, April 22, 1856, who had been the subject of inguinal hernia of the right side for three years. On the sixth day the instrument was removed, when a small slough was noticed, near the point of the needle, the size of a sixpence. On the twenty-first day, this patient was so well that he resumed his work on the hospital huts, without a truss.

Of fifty-six cases, performed in different countries, in 1854, no instance of death had occurred; and even at the present time it is doubtful if any fatal accident can be reported as directly a consequence of this operation, performed now between one hundred and two hundred times.

I prefer this operation, owing to the simplicity, the painless character, and the freedom from danger of the proceeding, to any of the more complicated measures which may merit a passing notice.

Dr. Jamieson lays open the sac, and then fills the ring with a portion of integument, cut into proper shape and inserted.

M. Graefe lays bare the neck of the sack at the external ring, cuts it through, and then introduces, as far as the internal ring, lint covered with some irritating application.

M. Bonnet, of Lyons, operates in the following way: the contents of the hernial sac having been returned, he pushes a pin, which has been passed through a piece of cork, through the integuments and neck of the sac, as near as possible to the external ring, care being taken not to touch the spermatic cord. The pin is carried through the opposite integument, and the point is inserted into another piece of cork. Two or more pins may be required to excite adhesive inflammation.

M. Mayor, of Lausanne, uses needles carrying ligatures for the same purpose.

Scarification of the neck of the sac, as practised by Guerin; acupuncture, scarification, or injection, as recommended by Velpeau; do not appear to me to possess the advantages, combined with the safety of the operation, as recommended by Wützer.

Dr. Pancoast, of Philadelphia, has performed subcutaneous injection without accident, but with uncertain success, thirteen times. The hernial sac (the intestinal contents having been returned) was punctured through a canula by a small trocar. Having ascertained that the instrument was fairly in the sac, by the freedom with which it could be moved about, the point was directed upwards so as to scarify the internal orifice of the upper part of the sac. The trocar was then withdrawn, and half a drachm of the tincture of iodine, or cantharides, was injected slowly, by means of a small syringe fitted to the canula. The canula was then withdrawn, and a compress was applied. Severe inflammation occurred in only one case.

When we remember that, according to Mr. Bryant, out of 84,478 cases of hernia, 88 per cent. were inguinal, and 11 per cent. femoral, we may imagine the importance of every operation by which the inguinal canal might be with safety closed. I must confess that at the present moment I prefer the operation of Wützer, namely, that of simple invagination, which has proved successful both in my own hands and in those of others, and is apparently free from risk.—*Midland Quar. Journal, Vol.* 1, 1857, *p.* 17.

69.—*Use of Coffee in the Treatment of Strangulated Hernia.* By Dr. Joseph B. Sammut, Malta.—Having lately perused an Italian medical journal, I was struck with the simplicity of a remedy proposed for cases of strangulated hernia, the efficacy of which I have since had occasion to prove. Not having observed any mention of it amongst the several remarks on this subject in our journal, I think it might not be unacceptable to draw attention to a method of cure at once so simple and easily obtained. The case was as follows. A coloured man, aged about 55, very robust, cook in a merchant vessel, had been in the habit of wearing a truss for an incipient inguinal hernia, but had left it off for some time. On the evening of Oct. 7th, he, having spent some hours on shore, returned on board somewhat intoxicated, and commenced wrestling with some of the men, when, on a sudden, he felt so severe a pain in the right inguinal region, as to lead him to suppose he had received a kick, but which, from subsequent information, I have reason to conclude was not the case, but simply the hernia descending into the scrotum. He was put to bed, and in some hours afterwards symptoms of strangulation appeared. I did not see him till the following morning between seven and eight o'clock. Having placed him in a convenient position, I tried the taxis, but the patient could not suffer my touching him. I then determined to try strong infusion of coffee (one ounce to each cup), when, to my surprise, after

drinking the first cup, the patient's face appeared less anxious, and I was enabled to reduce the hernia with little trouble. This was a result hardly to be anticipated, as the desired effect does not usually take place before administering half a dozen cups, allowing a quarter of an hour to intervene between each. This remedy is frequently used in Habana with success, and has been often tried with equal success by many practitioners; at times in combination with the bath, belladonna ointment over the tumour, &c.—[Compare the above with a short article on this subject at p. 231 of our last volume. Ed. *Retrospect.*]—*British Med. Journal, Nov.* 7, 1857, *p.* 926.

70.—ON THE TREATMENT OF INTERNAL PILES AND PROLAPSUS ANI BY NITRIC ACID.

By Hy. Smith, Esq., Surgeon to the Westminster General Dispensary.

[The ligature is usually looked upon by our best surgeons as the most effectual means of treating internal piles. This is true, but the operation is attended with a necessary confinement to bed, sometimes with severe suffering, and occasionally it is followed by death. In a large proportion of cases, the application of strong nitric acid to the parts will obviate any severer operation.]

The following is an instance of its beneficial employment in prolapsus ani.

Mr. S., aged 59, applied to me, March 3. He was in excellent health, but had suffered several years from a prolapsed gut. It always descends when he goes to stool, and generally when he walks out. On examination I found a considerable protrusion of the mucous membrane of the rectum. He has, in consequence, suffered lately from great irritation of the bladder, and has had complete retention of urine. I recommended the patient to use an injection of oak bark.

March 9. The gut is much prolapsed, and the patient has suffered greatly from irritation of the bladder. I applied nitric acid very freely, and having well oiled the parts returned them.

12. The gut does not come down so much, and on examination to-day, it is difficult for him to protrude even a small portion. I applied the acid again.

20. I have applied the acid once since the last report, and he has called upon me to say he is quite well, and to express his gratitude for relief from sufferings which have troubled him for years.

In such a case as the foregoing the relief given by the application of nitric acid is striking; but there is another class of cases in which the benefit afforded is equally remarkable. I refer to those instances of internal piles when there has been more or less hemorrhage for some time.

Mr. A., aged 23, sent to me by Dr. Beaman.

May 21. He is in a weak state of health, and presents the appear-

ance of one who has lost much blood: has been subject to piles for three years; they protrude when at stool, and he has every day during the last three months lost a large quantity of blood. On examination I found the mucous membrane of the lower part of the rectum in an unhealthy condition, and a large hemorrhoidal excrescence protruding. I applied the nitric acid pretty freely.

25. Much the same; the bleeding has not ceased; and the hemorrhoid still protrudes. I made the patient sit over some hot water for some time, and when the piles were thoroughly protruded, I applied the acid freely.

28. A good deal of irritation was produced by the acid for several hours, but it gradually went off, and on examination there is no protrusion.

June 1. This patient has very much improved. There has hardly been any bleeding or protrusion. I applied the acid slightly to the diseased part of the gut which could be brought into view.

6. He feels quite well, and has no protrusion of the gut even while at stool.

Mr. B., aged 29, also sent by Dr. Beaman.

Oct. 6. States that he had been troubled with piles for two years, and that during the last six months he had suffered daily from bleeding, which was increased by horse exercise, to which he is much addicted.

The day before I saw him he had consulted an eminent surgeon, who requested him to come to his house on the following day, and remain sitting over hot-water so that the gut might be protruded; but the patient fearing that an operation would be performed declined. I advised the gentleman to take a dose of castor-oil on the evening of the 7th, and to come to me on the 8th; on which day a highly vascular and thickened hemorrhoidal mass was protruded; I applied nitric acid freely to it, and returned it within the sphincter.

9. He sent for me to his residence to-day. I found him in considerable pain: the diseased part had descended outside the sphincter, and the surrounding textures were much swollen. I returned the piles, ordered him to lie in bed for a few hours, and recommended hot fomentations and an opiate.

13. The patient went into the country until to-day: he has scarcely any bleeding: he took castor-oil before coming, and I applied nitric acid to the portion of the diseased bowel which was protruded.

20. The patient scarcely complains of anything, except a very slight bleeding when at the closet. There is now no protrusion. I had slightly used the acid on the 15th. To-day I examined with the speculum, and touched that part of the gut which seemed in an unhealthy state.

24. This gentleman suffers nothing from pain or protrusion even when at stool: but I examined with the speculum again, and applied the acid as there was some slight bleeding. I recommended the use of an injection of two grains of sulphate of iron to an ounce of water,

into the rectum twice a-day. I learned afterwards from Dr. Beaman that this gentleman was quite well, and ardently enjoying his favourite pursuit of hunting.

This instance illustrates in a particular manner the advantages of nitric acid; for here was a young and healthy man, passionately fond of field sports, and would brook no control, who was very anxious to get rid of his disease, but would not submit to an operation which would confine him to bed for several days. I could, however, offer him a means of cure which would not lay him up, or prove dangerous. It is true that the very free use of the acid did confine him to bed for a few hours. This accident cannot always be avoided, but it has not occurred more than two or three times in my hands. There is one other point in connexion with the use of the agent, which this case also illustrates, viz., the amount of pain produced when the acid is applied through the speculum. On both occasions on which I used it the patient actually asked me after the mucous membrane had been freely touched, whether it had been applied or not. In fact he complained more of the introduction of the speculum, although a small one.

It is most important in the treatment of diseases of the rectum by nitric acid that the cases should be selected, otherwise the surgeon will be disappointed in the result, and the patient will be rendered worse than he was before. It is in those cases of internal piles, where the diseased texture is only of moderate extent, has a broad base, and presents a very vascular appearance, as though the excrescence was composed chiefly of minute arterial branches, that the acid will prove speedily and effectually serviceable; when, however, the hemorrhoidal excrescences are very large and of a blue appearance, mainly consisting of venous ramifications, nitric acid should not be applied; neither should it be applied while a patient is suffering from what is called an acute attack of piles. I was unwise enough to use it in a case of this kind not long since, and although I believe the patient may have been ultimately benefited, great temporary distress was produced, and undeserved blame was thrown upon the remedy.

In cases of prolapsus ani of considerable size when there is not a complication of large or several piles, and when the mucous membrane is simply thickened and relaxed, this remedy will be eminently serviceable. I have by means of it lately relieved a gentleman of the necessity of wearing a pessary, which he had done for years, being afraid to undergo a cutting or tying operation; and being ignorant of the efficacy of nitric acid in such cases until he had his attention called to one of my papers in the 'Medical Times.' I have very recently been attending, for another complaint, an old gentleman, who has for many years worn a pessary for a prolapsus as big as my fist, who will not permit any operation. Here, however, nitric acid would I fear not be applicable.—*Med. Times and Gazette, Jan.* 16, 1858.

71.—CASE OF IMPERFORATE ANUS.

PROPOSED MODIFICATION IN OPERATIVE INTERFERENCE.

By Redfern Davies, Esq., Birmingham.

The surgical epoch in which congenital imperforate anus will cease to be regarded as an anatomical *lusus naturæ*, or as an opprobrium to the art and science of our profession, will arrive only when success shall uniformly crown our efforts. At present, how few, how extremely rare, are any recorded cases of individuals born with this deformity, and living! The pages of our own and of foreign journals, though occasionally relating some solitary instance of partial success, are wonderfully barren in any accurate details on the subject;—indeed, whether as to anatomy, physiology, or treatment, since the writings of Amussat, nothing has been improved upon, little or nothing has been in fact done.

The rectum, and its terminal apparatus, the anus, is formed, as is well known, by the descent of the former in the pelvis, which in due time meets the anus, and becomes incorporated with it; whilst simultaneously the membranous septum, which before had closed the end of the gut, becomes absorbed, giving place to what will best be fitted for the performance of the coming functions of life. In either of these parts of the economy, or both at the same time, arrest of development may occur. It may be complete or partial—thus producing the various forms of imperforate anus which have been seen. Malformations are also due to disease in intra-uterine life. Cases are reported showing evidence of inflammation having existed within the rectum (*rectitis*), whereby the coats became adherent and the rectum impervious.

Anatomical Characters of Imperforate Anus.—1st, and simplest form of arrested development, is when the anus and rectum are both normally formed, but the membranous septum of fœtal life still exists between the two.

2nd. *Malformations of the Anus.*—Of these there are an almost infinite variety. The integument of the perineum may pass over the mucus membrane of the aperture from one side to the other, or only partially over it—producing more or less blocking up of the passage, and usually presenting a kind of tubercle on the surface through which passes the fæces.

The sphincter may or not be present.

3d. *Malformations in the Rectum.*—When the rectum does not descend low enough in the pelvis to meet with the anus, but terminates in some form of *cul de sac* at a variable distance from it.

When the rectum opens into a part of the surrounding viscera, viz., bladder, urethra, or vagina.

4th. Every possible variety of the preceding classes existing together.

In the *Archives Generales* for the months of May, June, and July,

in the past year, is a translation of an essay by Dr. Herman Friedberg (*agrégé* to the Berlin Faculty of Medicine) on Artificial Anus. The subject is discussed at length,—it is the most complete *resumé* of cases to be met with in any language; and, from the high character of the author of the paper, much weight is attached to his doctrines and practice. After commenting upon the advantage of an opening in the perineum, as opposed to one in any other site, M. H. Friedberg goes on to say, that simple opening of the rectum through the perineum ought in the present day to be completely abandoned. "I do not know," says he, "a single case in which an opening by a trocar has preserved life permanently, when the closed extremity of the rectum has been distant from the normal site of the anus;" and, furthermore, he cites in corroboration of his opinion the words of M. Roser, who "has not found any detailed account, not even one, which tends to show that any decided improvement has been obtained by the employment of the trocar, when the rectum has been absent a distance of one inch." The operation that he strongly contends for is that of Amussat, viz., the bringing down the gut when an opening has been made in it, and stitching it to the outlet in the perineum. In support of this, he adduces two cases in which the rectum was distant one inch and a half and three inches respectively (they, however, died, the one in six, and the other in nine months); together with the four successes of Amussat, which, as Erichsen observes, singularly all occurred at Brest. Certainly, the Professor does not prove much by numbers. The advantages that he claims for it are beyond doubt good and substantial: viz., that there is a mucous membrane lining the whole tract of the canal; that the evacuations are more easily accomplished; that the natural tendency in canals not so provided to gradually contract, and finally become completely closed, is prevented; that the irritation and danger arising from the contact of effete matter with tissues not intended for such contact is also obviated. Against so formidable an array of arguments in favour of this line of conduct, the reasons that induced me, at the time when the rectum was opened, to forego even the attempt to bring it down were,—that I deemed the distance, two and a quarter inches, at which it was situated from the external opening, to be so great, as to preclude the possibility of so doing. Bound down as the rectum is by its fold of peritoneum, the meso-rectum, I feared to encounter the almost certain dangers of peritonitis, or pelvic cellulitis, which must inevitably be the probable consequence of the laceration of its connective tissue, to permit of its descent for such a distance. Besides, at such a depth, how great an uncertainty there must be as to what the forceps might seize hold off. A free outlet having been established, the exigencies of life were provided for, and the vital functions were, for the time, fully as well performed as they could have been, even had the gut been brought down. So far the operation consisted in one of simple puncture; and had it been intended for it to remain as such, the

somewhat violent and dogmatic fiats of the two German *savans* quoted a few sentences back, would be, as I shall directly show, not absolutely justifiable. One case by Schleiss (in 1853) is narrated as successful; and up to the present hour its result has not been impugned. Another, where the rectum was absent about two and a half inches, I had the opportunity of witnessing while in Paris last year; the case was under the care of M. Maisonneuve, and presented to the Academie de Chirurgie, also reported in the *Gazette des Hopitaux*,—*vide* Nos. 22 and 53, 1857. There is at present—aged some forty years—a gentleman in this town who was so operated upon, and who walks about a living monument of its success. The fact, therefore, that in certain isolated cases a fortunate issue results is certain; and it is also as certain that they are very, very much the exception to an all but universal law, that children born with imperforate anus die. To what, then, shall we attribute this result? The child is born, to all appearance, healthy, save this defect; which only kills by its mechanically preventing the exit of effete matter, and its attendant consequences. It would, therefore, appear that to overcome this difficulty would be to solve the question; and doubtless such will be the result when the operative procédé shall be improved, nd so in proportion will lives be saved, save in those cases where the vital powers of the child are below par (as in part evidenced by the congenital deformity), and of themselves unequal to carry on life, much less when this embarrassment is added to them.

With all due deference, therefore, to the opinions of others, and in hopes that it will receive whatever of attention it may merit in their hands, I beg to lay before the opinion of my more experienced professional brethren the following modification in the operative interference usually adopted in these cases, which I had intended, had the patient survived a sufficient length of time, to carry into effect. As far as can be judged by the evidence of the published cases, death is the consequence of different causes, according as the rectum is, or is not, brought to the opening of the wound. If it is, death ensues from the injuries inflicted by so doing. If it is not, death ensues, but secondarily, in consequence of the difficulty to defecation being only partially removed. I would propose, therefore, to combine these two procédés, and endeavour to obtain, by extending the operative measures over a considerable time, immunity from the evils of both: viz., supposing, in the first instance, that an opening had been made (as was done) into the rectum, nature being relieved, had not other influences intervened, the child would have lived *pro tem.*; but then comes into consideration the subsequent difficulty in passing the stool, owing to a gradually narrowing of the passage. All this is said to be due to the mucous membrane not being continuous with the outlet.

To remedy this, therefore, when the parts have recovered from the effects of the first operation, introduce a pair of forceps, and, seizing hold of the lips of the opening into the rectum, endeavour to bring it

down, not by one vigorous and decisive holding on by the forceps, and by main force bringing the gut to the external orifice, but by gently and repeatedly solicitating its descent, introducing the forceps at certain intervals, and gradually endeavouring to accomplish the end. If the rectum can be so moved from its position, and be brought lower down in the pelvis (and so by repeated attempts it has been proved) by one forcible extension, and even that sometimes crowned by success, how much more likely is it that success should attend the proceeding, when, by the almost imperceptible tractions made upon it, the great causes of failure, viz., peritonitis and pelvic cellulitis would be removed, owing to the small amount of disturbance that would take place in the soft parts. Although, as far as I am aware, this procédé by successive stages has never before been broached in any writings on the subject, the idea was taken from a case reported in the 'Lancet,' vol. i., p. 193, 1846 in which an incision was made into the perineum for a distance of three inches, and on the second day an attempt was made, by gently pulling, to draw down the gut, which was not, however, fastened to the external opening. One month afterwards the child was doing well.

I am fully aware that there is a vast deal of essential difference between this procédé and the one I advocate, nevertheless, accomplishing the end by successive stages, is in this case shadowed out, and will, I trust, assume a definite status in surgery.—*Edin. Med. Journal, March* 1858, *p.* 807.

ORGANS OF URINE AND GENERATION.

72.—ON THE TUBULAR TREATMENT OF STRICTURES OF THE URETHRA.

By Thos. H. Wakley, Esq., Surgeon to the Royal Free Hospital.

[The well-known instruments invented by the author are equally applicable to the successful and rapid management of the more simple and common forms of urethral contractions, as well as of the most severe and intractable cases which occur.]

As there may be many persons who have not had an opportunity of examining the instruments, nor, indeed, have read the paper published in November, 1856, I quote an abridged but sufficiently explanatory description of them, so as to render the remarks which will be adduced in favour of this plan of treatment intelligible:—

"The instruments are composed of three guides of different sizes, eleven dilating silver tubes, and the same number of flexible tubes. The guides are numbered 1, 3, and 5.

"A guide consists of a hollow silver director, thirteen inches in length, straight, excepting near the end, which is slightly curved, the

extremity being closed and rounded, and having an aperture at one side. A moveable handle is fitted to it, for assisting its introduction into the bladder; when this has been effected, the handle is removed, and a steel rod of the same size, five inches in length, is fixed into the external extremity of the director by one turn of a screw. This now forms the urethral director, over which the tubes are made to pass.

"The silver tubes are nine inches in length, and straight; the opening at the vesical extremity being bevelled off, and exactly adjusted to the surface of the guides. The upper end terminates in two flanges, for being worked with the fingers and thumb.

"The flexible tubes are manufactured of gum-elastic, lined with flexible metal, and are ten and a half inches long, conical towards their points. Like the silver tubes, they glide over the guide with the greatest precision. Their upper end is furnished with a silver collar and rings, to enable their being secured in the urethra. Both the flexible and the silver tubes are numbered, and work upon their corresponding guides."

The late Mr. Liston had the greatest possible objection to cutting instruments and caustics in the treatment of stricture. That celebrated operator, in his "Elements of Surgery," states that "the operation of passing a catheter is, perhaps, the most difficult in surgery." If this great master of his art made this statement from his own vast and extensive experience, surely it must be an advantage to be enabled to continue the process of dilatation without being obliged to withdraw one catheter or sound to pass a larger one, each time having a repetition of the same dangers and difficulties to surmount. Indeed, many surgeons, possessing high qualifications, are frequently doomed to disappointment from being unable after having passed one bougie, to insert even the next size. How easily this is accomplished with the guide and tubes. It is true that in the hands of the skilful and practised surgeon, the majority of so-called permanent strictures are under his control by means of "dilatation with catheters and bougies," but long time and considerable patience are required, as also very guarded manipulation. The process is necessarily slow, and is opposed by difficulties at every step.

Very considerable experience has fully proved, that in the milder forms of stricture, relief can be obtained very rapidly by means of the tubular system. This is evident, for at the first visit the treatment can be advanced to a position equal to what is gained in several interviews upon the old plan. The difference in the two systems may be explained as follows:—The treatment conducted upon the ancient plan would be to retain the largest catheter which could be introduced for an hour or so. With the tubular system that instrument forms a guide upon which the dilating tubes can be passed through the stricture with the greatest ease. Thus an action is excited which promotes the rapid absorption of the adventitious deposit causing the stricture. Some years ago, I treated a gentleman for stricture of the

urethra upon the old plan. A few days since the same patient applied, telling me he was much worse than when treated before. At the first attempt it was found impossible to pass the stricture, but on the following morning, after considerable perseverance, I succeeded in passing the smallest guide, and then dilated the stricture up to the No. 6 metallic tube, which was retained for one hour. Three days afterwards this gentleman called upon me, and I then examined him, and a number 5 was easily passed The case was really advanced in four days equal to six weeks on the former occasion. Thus this treatment is adapted for those patients who can only make a short visit to their surgeon, as so much can be accomplished in such a short time.

The treatment can be conducted more *safely*, for when having to pass a larger instrument, this can always be accomplished by means of the instrument which has been previously passed, over which the tubes slide with unerring accuracy, and cannot by any divergence from the canal cause any dangerous consequences.

The effect upon the stricture is more *certain*, from the unlimited power of expanding the disordered portion of the canal; for after the first introduction of the guide, suited to the calibre of the contraction, whether in severe or simple cases of stricture, an instrument of such a size could be passed as would be wholly impracticable by the old system

The permanence of the cure is more *enduring*, for a most lasting effect is produced by the rapid dilatation of the stricture, owing to the greater amount of pressure producing a corresponding degree of absorption.

The introduction of the tubes is comparatively *painless*. With some persons, the attempts of the surgeon to introduce an ordinary bougie are frequently accompanied with great pain, although a smaller instrument had been passed previously. The tubes fit the guide with such accuracy that they glide through the stricture so easily and rapidly that the patient is frequently unaware of the completion of the proceeding.

It is impossible to cause *hæmorrhage*, or to make *false passages*, for owing to the mechanism and perfect manufacture of the instruments, the tube passes over the guide with certainty and precision, being insinuated through the contraction by means of a rotatory motion of the flanges of the tubes. Surely the most sceptical must allow these are inestimable advantages! Look at the hazard to the delicate lining of the urethra with the ordinary catheterism—having to withdraw one instrument previous to the introduction of another. In ninety cases out of a hundred, where false passages exist, how came they there? They have truly been designated the opprobria of surgery.

The tubes are peculiarly adapted for the *obliteration* of false passages. Many strictures occasioning but slight inconvenience to a patient, are frequently complicated with a false passage, particularly

if the person himself has been making attempts to pass an instrument. It is well known that the introduction of an instrument large enough to be of service in such cases is a proceeding of extreme and frequently insurmountable difficulty. Every surgeon has been perplexed by the inclination of the catheter to enter the false passage instead of the natural canal. By means of the guide, a large-sized tube is easily passed; and thus an all-important step is gained towards healing this troublesome complication.

After the pressure which has been applied to the contracted urethra, the delicate and sensitive lining has time to recover itself before the next discharge of urine; by this means a frequent cause of constitutional disturbances is avoided, in which may be included those distressing *rigors* to which stricture patients are particularly susceptible.

The facility with which the *bladder* can discharge its contents through the tubes is also of incalculable advantage and great comfort to the patient. Many sources of irritation may be thus obviated, which would not pass through the eye of the catheter or bougie.

[As in every thing else, so in surgery, inattention to little things is a more frequent cause of failure than inattention to greater things. In the use of the instruments recommended by the author, be careful to examine them well before use, to see that all the parts are perfect and the surfaces highly polished, that their motion may be free. Always wash them well after use.]

It is of importance to state that the numbers of the urethral guides and tubes exactly correspond with the sizes of the ordinary catheter and bougie. When a patient applies to me, suffering from stricture of the urethra, after learning the history of his case, the urethra is examined with a No. 5 guide; if it can be introduced, the treatment of the case is conducted upon that guide. But if that cannot be passed, an attempt is made with the No. 3 guide; or, this instrument failing to penetrate the stricture, the smallest guide must be used. Whichever guide can be introduced, the first steps of the treatment are conducted by means of the tubes which have been adapted to that particular guide, and which are marked accordingly. Supposing the treatment has been commenced upon the No. 1 urethral director, silver tubes ranging to No. 4 are perhaps passed; when guide No. 3 is introduced, silver tubes to No. 6 or 7 are passed over it, when the case is completed upon the No. 5 guide, over which the larger sizes are made to pass. Thus it will be seen that this new arrangement of the instruments meets the objection which has been urged by some surgeons, that the frequent passage of the small guide in the advanced stage of treatment, risks unnecessarily the urethral lining.

After the introduction of the guide, the handle should be withdrawn, and the steel rod fixed by one turn of the screw. This now forms the urethral director. The tube which is to be used should be well

moistened with either oil or glycerine, especial care being taken to drop some into the vesical end of the barrel of the tube. This can conveniently be effected by the aid of a small syringe. I nearly always use glycerine as the means of lubricating the instruments; it is soluble in urine, consequently the next stream of urine after the passage of a tube thoroughly cleans the urethra. This is not the case with oil, which will not mix with urine: small globules cling to the mucous lining, sometimes becoming rancid and a source of irritative inflammation, frequently producing pain and discharges. Glycerine adheres more tenaciously to the tube in its passage through the stricture. This is considered of great advantage when two or more strictures have to be penetrated. Supposing the glycerine employed is pure, and of a proper specific gravity, the tubes slide along the guide more pleasantly than with oil, and afterwards are more easily cleaned. The patient being placed in the upright position against a wall the index-rod is held in the left hand, and depressed to a point somewhat more than at right angles to the body; by this means the pendulous portion of the urethra is made straight, the guide resting upon the triangular ligament. The tube which is intended to be used is now passed over the index-rod; when it reaches the contraction, a slightly rotatory motion of the handle assists its introduction. Having dilated the stricture with the first tube, that is withdrawn, and the next size passed, and so on until the operator decides that he has effected enough at that visit. The last tube is then tied in by means of a broad india-rubber band placed around the root of the penis, the steel rod is disengaged, and the patient placed in the recumbent position. The silver tube should be retained for an hour, and then withdrawn, and the patient desired to come again in three days, when the same process should be repeated, only employing larger tubes, the completion of the cure always being conducted upon the large-sized guide. In the treatment of the milder forms of stricture, it is never necessary to use the elastic metallic tubes. The patient should be enjoined to abstain from much walking, particularly upon the day of his visit.

Having described the stricture instruments as I now employ them, and fully explained their mode of application for the relief of this distressing disease, I proceed to illustrate with abstracts from the reports of cases their several claims *seriatim* to superiority over the single catheter or bougie in the treatment of strictures of the urethra.

In the milder as well as in the more severe forms of stricture, relief can be obtained very *rapidly* by means of the tubular system. This is evident, for at the first visit the treatment can be advanced to a position equal to what is gained in several interviews upon the old plan. Many patients have been under treatment with the new instruments, who at an earlier date had been relieved with the common catheter or bougie. Here, then, is a direct point of comparison. The patients themselves become authorities upon the merits of the

rival methods of treatment, and it affords me great satisfaction to be enabled to state that their verdict is invariably in favour of the new system. The following case very forcibly exhibits its advantages as to the time required for the successful treatment of strictures of the urethra:—

Mr. J. W—, aged fifty, had been suffering from strictures of the urethra for many years. He was desired to place himself under my care by Mr. Westlake, surgeon of Surbiton. The patient presented all the symptoms of the disease in its most chronic form—continual dribbling, from inability to retain his urine, but with constant though ineffectual desire to empty the bladder. He also experienced considerable pain about the region of the kidneys, and suffered from general constitutional debility, arising from the long existance of the disease. Some years since, he consulted the late Mr. Aston Key, who treated his stricture with bougies and sounds, and attended him twice a week during five months. The patient says that for several visits this eminent surgeon could not "get beyond" a No. 2 bougie; the urethra was very irritable, and he suffered considerably from the attempts made to pass instruments. When he left Mr. Key, he passed his urine in a good stream, and considered himself well. Some months afterwards symptoms of stricture again appeared, and in a comparatively short time his distressing malady returned. He then placed himself under the care of the late Mr. Callaway, and was again relieved of his complaint by the ordinary method in about six months. He now remained well for three or four years, when he perceived that the stricture was again reappearing, and he has suffered more or less ever since. He has not applied to any surgeon, but "has taken great care of his general health," and tried to keep the disease in abeyance by various medicines and "herbs" which had from time to time been recommended to him by different persons. However, lately his health had been suffering to such a degree, that surgical aid was indispensable.

On examination, I found a stricture within half an inch of the orifice, and another, tight, irregular, and cartilaginous, about five inches from the meatus. There was great irritability of the bladder and urethra. The skin of the scrotum and perineum was inflamed from the dribbling of the urine, causing the disagreeable odour which accompanies this symptom. The patient had great fear of the employment of instruments. In about twelve minutes I succeeded in passing the No. 1 guide; the handle was removed, the index-rod fixed, and No. 3 silver tube introduced completely through the strictures with great facility. This I withdrew, and substituted a No. 5 silver tube, which was tied in and retained about thirty minutes, with but slight pain and annoyance resulting. It was curious to notice the change that had taken place in this patient. The involuntary resistance and uncontrollable excitement had passed away after the insertion of the first tube, and he expressed himself much pleased

with the progress made. He was requested to come again in three days: upon that occasion I passed a No. 3 guide; dilatation was advanced to a No. 6, the tube being kept in the stricture about an hour. At the next visit, I repeated the introduction of the No. 3 guide, and carried the expansion of the stricture to No. 7 tube. Three days subsequently, he called again, when I found that I could introduce the No. 5 guide with great ease, and Nos. 8 and 9 silver tubes were passed through the stricture. In fourteen days he could retain his urine completely, passing it when required in a moderate stream. In one month after the commencement of the treatment, he discharged his urine in a full stream, all dribbling had ceased, the skin of the scrotum had recovered itself, and the ammoniacal smell had vanished; he had not felt the pain in the back for some days, and his general health was greatly restored.

The treatment of the stricture or strictures can be conducted with greater *safety* by the prompt method; divergence from the canal is impossible; consequently there is no chance of lacerating the delicate membrane lining the urethra. Every surgeon is acquainted with the fearful consequences which occasionally follow "breach of continuity" in this highly important structure. M. Civiale, in his work, "De l'Uretrotomie," which is intended to advocate the division of the strictured part with sharp instruments, states, with praiseworthy candour, the dangers accompanying wounds or injuries to the urethra. He places the risks in the following order:—1, hemorrhage; 2, pain; 3, irritative fever; 4, ecchymosis; 5, local inflammation and tumefaction, with or without discharge; 6, infiltration of urine; 7, false passages; 8, inflammation and abscess in different parts of the body; 9, death.

Surely the list of probable consequences from injury to the urethra, coming from this great French authority, deserves the most profound attention. It is the same whether the wound to the urethra has been caused by a sharp instrument or the blunt point of a catheter or bougie. Every surgeon who is conversant with the treatment of stricture will endorse this opinion of M. Civiale relative to the dangerous and disastrous results which occasionally follow lesions of the highly organised and sensitive urethra. Even in the hands of the most skilful and accomplished practitioner accidents have occurred from the inefficiency of the mechanical means at his disposal with the old single catheter. These unhappy results are not isolated cases; they are not uncommon, as is clearly proved by the hemorrhage which so frequently follows the attempt of the surgeon to re-pass the catheter. The unerring accuracy with which the tubes pass over the guide obviates all chance of wounding the urethra. The bevelled end of the tube fits the guide so closely, that when the former reaches the contraction it glides through the obstruction with great readiness. The peri-urethral adventitious deposit causing the stricture is always more or less elastic, and this invariably yields to the action of the

tubes; their introduction through the stricture being infallibly accomplished whether the contraction is a line or even two or three inches in extent.

Almost all authors, when writing on stricture, refer the frequent existence of false passages to the same cause—the deplorable results of the old system of catheterism. In chronic cases of stricture, where the canal has been frequently explored, we are almost certain to discover one or more false passages.

In a case of ordinary stricture, it is often found that the difficulty of introducing a catheter or sound is great enough. How much is this increased by the formation of a false passage, whose open mouth is ever ready to receive the point of any instrument which is attempted to be forced through the stricture? Disastrous as are the effects of false passages of the urethra, how infinitely worse would they be if the urine flowed *against* their mouths, and into them, instead of *over* their openings! Assuredly the time has arrived when the employment of such unsuitable and dangerous instruments should be altogether abandoned. By the tubular treatment a rapid and successful removal of the stricture can be accomplished without any chance of doing mischief. If false passages already exist, the graduated tubes will be found the most certain, safe, and effectual means of cure.

In the month of February, last year, I was requested by Mr. Reeve, surgeon, of Moreton-terrace, Kentish-town, to see a gentleman who was suffering from retention of urine, caused by a chronic and irritable stricture of many years' standing. A practitioner had attempted to pass a catheter, but had failed in consequence of the excessive hemorrhage which had followed even the most gentle manipulation. The patient said that he had lost half a pint of blood from his urethra. He had long suffered from the disease, and had experienced four attacks of retention of urine, and the attempts to pass an instrument had in every instance been accompanied by profuse bleeding, and on several occasions he had fainted from loss of blood. He was lying on a sofa, with the bladder considerably distended, in great pain, much prostrated from hemorrhage, of which there was ample evidence in the room. On examination with a common No. 4 catheter, I found that after passing to about five inches and a half from the meatus urinarius the point of the instrument went readily to the right of the stricture. The extent of this passage was not ascertained. I immemediately withdrew the catheter, and examined the urethra around the stricture; this did not cause bleeding. The introduction of a No. 1 guide was then attempted, carefully avoiding the bleeding false passage, and after searching gently for the orifice of the stricture for some time, the point of the instrument was insinuated into it, and passed on to the bladder, when a very large quantity of urine escaped through it, and the urgent symptoms were relieved.

In the following month this patient was again threatened with complete retention, and on seeing him with Mr. Reeve, he gave the

following history of his case:—At an early age he contracted acute inflammation of the urethra, which was accompanied with profuse discharge. After different medicines had been administered without effect, and the discharge had become chronic, he was advised to consult a late eminent surgeon, who prescribed an injection of nitrate of silver, which considerably lessened the discharge, but did not stop it entirely, a thin gleety running continued for about ten months. About this time he fancied that he was longer evacuating the contents of the bladder than formerly; and some weeks afterwards he noticed that the stream of urine was altered in shape, and he could not complete the act of micturition in a stream, but there was always a dripping towards the close. He imagined that he was suffering from "partial paralysis" of the bladder, and consulted a physician, who suggested the existence of stricture, but the patient would not believe that there was any mechanical impediment to the flow of urine, and did not consult any surgeon. Two years passed, and symptoms of stricture became so distressing that he sought surgical assistance. Catheterism was commenced, and he was under treatment for six months. During this period he frequently bled profusely from the urethra, and on one occasion, suffered from swelling and inflammation of the perineum, with excessive rigors, and was confined to his bed for fourteen days. He states, however, that an abscess did not form externally, although, on two or three occasions, nearly a thimbleful of bloody, thick matter passed from the urethra. He stated that at the conclusion of the treatment on that occasion the stream of urine had much improved.

Three years afterwards he again placed himself under the care of a surgeon, while suffering from almost impassable stricture. This practitioner told him that he had a false passage extending at least two inches. He was again under treatment, more or less, for thirteen months. It was at the early part of this attendance that he experienced his first attack of complete retention, following excessive hemorrhage and rigors, which were relieved by warm baths and opiates. He again recovered considerably in health, and some weeks afterwards married. Within six months he again had retention of urine, and was treated with partial improvement. He had been more or less under medical surveillance ever since the last attack. He could always tell when the point of the catheter or bougie entered the false passage, which was followed by more or less of bleeding and rigors. For some weeks previous to his last attack of retention no instrument could be introduced into his bladder. He was much emaciated and sickly-looking, and considered his case incurable.

The treatment was commenced on March 14th. After two days of preliminary preparation, I examined the urethra most carefully, and even sounds of a large size passed by their own weight into the false opening to the right and lower side of the urethra; indeed the patient himself passed a No. 8 sound into the passage, to show me

"where it was and how long it extended," and considerable bleeding followed this proceeding. After failing to pass the No. 1 guide for half an hour, I then desisted from a further attempt in consequence of the extreme irritability of the urethra. On the next day I succeeded in introducing No. 1 guide without its entering the false passage; no hemorrhage. The index-rod was attached; the handle of the guide withdrawn. No. 3 silver tube, having been well lubricated both inside and out, was gently pressed beyond the false opening into the stricture, which, by a slightly rotatory movement, passed over the guide through the stricture. This did not cause the loss of a drop of blood. The silver tube was withdrawn, and an elastic one of the same size substituted, which also was introduced over the guide into the bladder. The guide was then withdrawn, and the elastic tube retained in the urethra. I may confidently assert that the introduction of a No. 3 catheter through the old cartilaginous and irritable stricture by any other means than the one employed, and over the large hemorrhagic false passages which existed in this case, would have been an impossibility.

The previous history is important as affording irresistible evidence of the value of the tubular system compared with the old method of catheterism, and so much space has been occupied in its description, that I must omit the daily report of the case. However, I may state that in three weeks the stricture was quite removed, and the false passage healed. Either a No. 10, or a small sound would pass easily into the bladder, without deviating in any way from the natural course of the urethra. I saw him a few days since, and examined the urethra most carefully, and could not discover any vestige of the false passage.

Before concluding this paper I may refer to the case of a gentleman, who was sent to me by Dr. Henry Bennet. In this instance, similar fortunate results followed the employment of the guides and tubes. In this case there existed a close and highly-sensitive stricture, complicated with a false passage near the bulbous portion of the urethra. Unlike the former the false passage was of comparatively recent formation, and was quite healed in seven days from the commencement of the treatment, although the old system of catheterism had been tried for some weeks. The condition of the urethra, owing to the false passage, was so irritable, that although a No. 2 bougie had been passed several times, the manipulation necessary for the introduction of a larger instrument (which I was told invariably went into the false passage) caused such an amount of constitutional and local symptoms, that the attempt was always compelled to be abandoned. In the treatment for the cure of false passages, the guide having been once introduced, the tubes must pass over the abnormal canal, and owing to the pressure employed, which could not be applied safely by any other means, the false opening becomes obliterated. In no class of stricture cases are the beneficial

results of the tubular system more apparent than in those which form the subject of the present communication.—*Lancet, Jan.* 30, *Feb.* 13, *and April* 3, 1858, *pp.* 112, 162, 336.

73.—ON LITHOTRITIC INSTRUMENTS IN CASES OF ENLARGED PROSTATE.

By William Coulson, Esq., Surgeon to St. Mary's Hospital.

[In patients who have stone and enlarged prostate, should it be determined to perform lithotrity, a peculiar lithotrite is necessary, the ordinary instruments being too short.]

The changes in the genito-urinary organs produced by enlargement of the prostate, and requiring the use of peculiar lithotritic instruments, may be explained in a few words. Many men who have passed the middle period of life labour under some enlargement of the prostate; and such a condition of the gland seriously interferes with the functions of the bladder; but for my present purpose it will suffice to consider the effects produced on the urethra and floor of the bladder by any considerable swelling of the prostate. A consideration of these effects will at once show in what manner the modified instruments that I employ in such cases are, of necessity, required. A constant effect of prostatic enlargement is elongation of the urethra. This lengthening of the canal may be connected with several conditions of the enlarged gland; it is, however, mainly confined to the prostatic portion of the urethra, and occurs in one of two ways. As the enlargement pushes up the neck of the bladder under the arch of the pubes, it necessarily draws up and elongates the vesical end of the urethra; or, while the gland is slowly enlarging from before backwards, that portion of the urethra which traverses it must necessarily follow the abnormal development of the prostate, and become elongated. In his recent work on the 'Prostate,' Mr. Thompson observes "that in some preparations which he examined, the urethra measured three inches from the orifice of the bladder to the membranous portion, instead of an inch and a half, which is the normal length." In all cases of this kind, more especially when the middle lobe is chiefly affected, the orifice of the bladder is thrown backwards in proportion to the development of the enlarged lobe; and hence the point of any instrument used is apt to catch against the superior wall of the canal before it enters the bladder. This is an obstacle which the surgeon is very likely to meet with; and I may add, the shorter the instrument he employs the more likely is the obstacle to occur.

The effects of the morbid growth on the cavity of the bladder also require some notice. These effects, so far as regards my present subject, will depend on the degree of prostatic enlargement, and on the lobe principally affected. When the enlargement is chiefly confined to the middle lobe of the prostate, which encroaches on the floor of the

bladder, the capacity of that viscus at its lower part is proportionably diminished. I have seen a considerable part of the bladder occupied by the enlarged prostate; and, in extreme cases, preparations of which are preserved in our museums, the morbidly developed gland has occupied a great portion of the vesical cavity. In all the cases now alluded to, the effect of this extension of the middle lobe of the prostate backwards is to form a reservoir or sac behind the enlarged gland. The floor of the bladder is here greatly depressed; the urine remains as in a sac; and here a calculus may be lodged, the detection of which is often extremely difficult. I have, at the present time, under treatment, a patient who has a stone concealed behind an enlarged prostate, the existence of which had escaped the notice of those surgeons by whom he had been previously examined.

The necessity of employing special sounds and catheters in cases of enlarged prostate is well known to all practitioners. The increased length of the urethra, and the encroachment of the enlarged lobe on the floor of the bladder compel the surgeon to use a much longer catheter than usual. In prostatic enlargement the ordinary catheter will not penetrate into the bladder; and the experienced practitioner at once suspects the existence of the complaint from this circumstance. To enter the cavity of the bladder he takes a catheter from two to four inches longer than the one in ordinary use, and with an instrument of this kind he succeeds after having passed it about twelve inches beyond the orifice of the urethra. The same holds good with regard to the sound. Thus the stem of the ordinary sound measures seven inches and a half; the stem of a moderately-sized prostatic sound measures nine inches and a half. An ordinary catheter, now before me, measures nine inches and three quarters to the point. A prostatic catheter measures thirteen inches and a half. From fourteen to sixteen inches is the length recommended in standard works.

In cases of enlarged prostate, then, the surgeon requires a long catheter of peculiar shape to draw off the urine. For the same reason —viz., the increased length of the urethra, and the depression in the floor of the bladder—he will require a long lithotrite of peculiar shape, in order to catch and crush the stone with ease to himself and safety to his patient.

If the long prostatic catheter be expedient, the long prostatic lithotrite is, *à fortiori*, indispensable. The necessity of employing a longer instrument than usual in such cases will, I imagine, be generally admitted; and if I insist on it here, it is because our standard works do not allude to the point—an omission of which I have been no less guilty than others, and which I would now repair. The ordinary lithotrite of Charrière measures ten inches from the root of the stem to the eye: the cord of the curve, from the eye to the point, is one inch and three-eighths. The long lithotrite, manufactured expressly for me by Charrière, measures twelve inches in the stem, and one inch and three-eighths in the curve. The stem of Weiss's ordinary litho-

trite measures nine inches ; the stem of the long instrument which he has made for me measures ten inches and a half : the beak is the same length in both, about an inch and a half.

I need hardly occupy much space in dwelling on the necessity of the surgeon being provided with a long instrument of this kind, and of the many advantages which he will derive from its use. I can only say that I have had cases which, I feel convinced, I could never have conducted to a successful termination without it. It should be remembered, that with an elongated urethra, the distance between the external and internal orifices of the canal is increased by at least an inch. The enlarged prostate, again, occupies the front part of the floor of the bladder, on which it encroaches another inch or more. The calculus lies concealed in a sort of pouch behind the enlarged lobe, which rises like a barrier before it. Under these circumstances, it is evident that the surgeon will require an instrument longer than that in ordinary use by two or three inches; the common lithotrite will either not pass into the cavity of the bladder, or, if it does, after having been forced up to the handle, the motion of its curved part will still be greatly impeded by the prostate.

In some of my cases the common instruments were not sufficiently long, and it became necessary to push them up to the shoulder before I could turn the point in the necessary direction. With the long lithotrite, on the other hand, the surgeon gets readily into the bladder; but to overcome the impediments likely to arise from an enlarged middle lobe, a peculiarly formed beak is necessary, and the pelvis must be raised.

The beak or curved part of the lithotrite must be short, and the curve sharp. With an instrument of this kind the surgeon will often be able to "fish up the stone from the depression behind the enlarged prostate," in the manner described in the last edition of my work on the 'Bladder.' By turning the point down, and elevating the handle of the instrument, the stone will commonly be found in the position already mentioned. When the middle lobe of the prostate is much enlarged, and extends some way into the bladder, the point of the instrument cannot be turned downwards in such a way as to reach the stone. The plan from which I have derived most benefit in such cases is that of raising the pelvis of the patient in such a way that the calculus shall be displaced towards the posterior wall of the bladder. Especial care must be taken that the pelvis itself is raised, and not merely the lower extremities. By adopting this plan, I have, on several occasions, immediately caught the calculi, which lay concealed behind the prostate as long as the patient retained the ordinary position. Every lithotrity couch should be provided with some mechanical contrivance for executing this proceeding quickly. The sufferings occasioned by the attempt to seize a stone behind an enlarged prostate, in the ordinary way, and after strong elevation of the handle, are often of the most distressing kind, and cannot certainly contribute to

the well-doing of the patient. On the other hand, the ease with which the reversed beak falls on the stone is remarkable; but the manipulation requires a cautious and practised hand.—*Lancet, Jan.* 30, 1858, *p.* 110.

74.—ON THE PATHOLOGY AND TREATMENT OF ENLARGED PROSTATE.

By Henry Thompson, Esq., London.

[The influence of iodine and bromine over certain enlargements of the uterus is undoubted, and as there seems to be a certain analogy between uterine and prostatic enlargements, we may hope that these agents will prove to have some remedial powers over the latter disease also.]

The following observations are so good, that we extract them:—

"I am of opinion, then, that it is certainly worth while to attempt the reduction of enlarged prostate, especially if it be an example which is ascertained to constitute a pretty uniform tumour in the rectum. If the patient enjoys a fair share of health, there is nothing to contra-indicate it; the treatment may be pursued without exhausting the constitution, or deranging the digestive functions.

"The plan which I have pursued in a few cases is the following:—

"Tepid hip-baths, daily, of water to which the bittern or mother-lye of the Kreuznach springs has been added, in varied proportions, beginning with half a pint, or pound, according to the form in which it is obtained (see note below (*),) to four gallons of plain water, at a temperature of 90° to 94°, or warmer, if preferred; in this the patient should be seated for twenty minutes every morning.

"Local application may be made either by enema or suppository; if by the former method, the following formula may be depended upon

* "The principal spring at Kreuznach employed for medical purposes is the Elizabeth-Quelle. Its temperature is 54½° Fahr., and it contains about 90 grains of solids in the 16 ounces with about 5 cubic inches of carbonic acid gas.

"The following is one of the most recent analyses, by Bauer:—

Chloride of sodium	72 92
„ potassium	0 97
„ magnesium	0 25
„ calcium	12 98
Carbonate of magnesia	1 57
„ lime	0·27
„ iron	0·20
Bromide of sodium	0·30
Minute quantities of iodine, manganese, and some earthy bases with chlorine	1·47
	90·93 grs. in 16 ozs.

In this form it is administered internally in small quantities.

"But for topical applications, the water of this spring is strengthened in saline constituents by the addition of the mother-lye after the elimination of the chloride of sodium at the Salt Works, which exist on a very large scale close by the town, at other saline springs. This mother-lye, of which the specific gravity is between 1·3 and 1·4, contains no less than between 2000 and 3000 grains of solids in 16 ounces. A late analysis gave the following result:—

as not too irritating to the rectum. It should be retained there as long as the patient can conveniently do so. The best instrument for injecting it is an india-rubber bottle with ivory tube, as the constituents of the Kreuznach water will rapidly injure metallic apparatus.

℞. Potass. iodidi, gr. v. Kreuznacher bittern, ʒij.; dec. hordei vel lini, ℥iij. Misce pro enema, quotidie utendum.

"To this a little opium may be added if necessary, in order to enable the bowel to retain it.

"The suppository, which, on the whole, is perhaps more easily administered and borne than the enema, may be used after the following form;—

℞. Potass. iodidi, gr. ii.—v., vel, potass. iodidi, potass. bromidi, āā, gr. ii.—iii.; cerati, gr. viii. Misce, fiat suppositorium.

"This should be employed at the time of going to bed, and may be repeated every night for a considerable period.

"Kreuznach water itself, from the Elizabeth-Quelle, is now obtainable in this country, but is probably less useful than the bromide and iodide of potassium, given internally. I must confess I am disposed to believe less in the value of internal remedies than in that of the topical means described. At most, I would employ only small doses of the bromide and iodide of potassium conjoined, in some suitable vehicle; these are more likely to be useful, and are much better borne by the stomach than the natural water, with its large proportion of chloride of sodium. From three up to ten grains of the bromide with, at most, one of the iodide, twice a day, is the quantity I have employed. It is scarcely necessary to say that this course must be persevered in for a considerable period of time, during which the dose may be gradually increased.

"Of the application of these irritants in any form or degree to the surface of the sensitive mucous membrane of the urethra I wholly disapprove. Nothing is easier than to pass down to the prostatic part a small portion of ointment impregnated with some chemical agent, and project it into the urethra there. But that it can remain

"In 16 ounces of the mother-lye there were 2484·16 grains of salts, constituting about a third part of the mixture.

Chloride of calcium	1789·97
„ sodium	226·37
„ potassium	168·31
„ magnesium	230·81
„ aluminium	1·56
„ lithium	7·95
Bromide of sodium	59·14
Iodide of sodium	0·05
	2484·16 grains.

"This fluid being evaporated, the saline matters have for some time past been imported to this country for medicinal use; but the result is considered somewhat inferior as a therapeutic agent both here and at Kreuznach, to the original mother-lye, while it is certainly somewhat less convenient for use. More recently this has been imported by Messrs. Schacht, of 38, Houndsditch: from whom my patients have obtained it in any quantity required, at a very reasonable rate.

there in any quantity, or for any time, adequate to the absorption of a part of the salt introduced, I do not believe: the greater part, if not the whole, is speedily removed to the bladder, and the utmost which can be expected to result is an amount of irritation corresponding to the quantity of the agent employed, an effect which, in any degree, is positively injurious.

"Now, although I think we may by perseverance in this line of treatment, aided by those other appliances, and by an appropriate regimen, which are necessary, and have been already described, attain some improvement in the condition of the prostate, or, perhaps, be able to retard its increase, I do not think we are warranted in expecting to reduce the bulk of a considerably enlarged prostate of long standing by the means described. They are, however, simple, easily employed, and unattended with any danger to the patient: and they certainly hold out more promise than any other therapeutic agents with which we are acquainted. They can be tried by the patient himself for a considerable period of time (and without perseverance for some few months it would not be desirable to commence their use), with but the occasional superintendence of his medical attendant, when once instructed at the outset. All the advantages which the natural springs possess are now attainable at home, since the treatment, mainly consisting as it does of external applications, is pursued with precisely the same elements as at Kreuznach, in no respect altered by their transmission here; while for internal remedies, the artificial product of the chemist is preferable to the crude salt water of the native springs.

"Under these circumstances I am induced to conclude that we shall act judiciously in advising most patients whose health is good, and in whom the complaint is not considerably advanced, to make trial of the treatment in question."

It will be observed that Mr. Thompson only speaks of the effects of this treatment conjecturally. He does not seem to have tried it, but it is certainly worth trial. Our own experience teaches us to believe more in the value of the bromide of potassium administered internally than Mr. Thompson appears to do by the above passage. We have long been in the habit of giving it and the muriated tincture of iron alternately week by week—a week of the bromide and a week of the iron—for several months, and have no doubt whatever that enlarged prostates have diminished very considerably in size under the course. The dose has been from half a drachm to a drachm of the bromide daily, and the same quantity of the iron tincture.—*Med. Times and Gazette, Jan.* 9, 1858, *p.* 40.

75.—*Galvanism in Incontinence of Urine.*—Mr. SIMON has recently been treating some cases of incontinence of urine in children by means of galvanism, the current being conveyed by the aid of a catheter in the bladder. The result in two or three well-marked

cases has been quite satisfactory. The cases selected for it must, of course, be those of true incontinence from atony, and not of irritable bladder from urinary causes.—*Medical Times and Gazette, Nov.* 14, 1857, *p.* 404.

76.—*Epithelioma of the Prepuce, Spreading to the Glans.*—It is of great practical importance to distinguish between two forms of cancer of the penis, for the reason that in the removal of one of them the patient *may be* altogether exempt from a recurrence of the disease, a matter not to be disregarded in the prognosis. Many patients have had the organ removed for cancer, which has not returned, most certainly, for many years. An instance of the kind is at present in University College Hospital, wherein the penis was removed six years ago, without recurrence of the disease.

The two forms of cancer, then, which affect the penis are these: one is epithelioma, or epithelial cancer, which attacks the prepuce; the other is true scirrhus, which involves the penis itself. On careful examination of the cases which remain exempt for many years, they turn out to be epithelioma. On the other hand, when recurrence does early take place, the scirrhous form has been present. These distinctions were particularly insisted upon by Mr. Erichsen. on the 2nd of December, when a case of epithelioma affecting the entire prepuce, and encircling the glans penis like a collar, was submitted to the operation of removal. The disease had spread to the glans, having commenced in the prepuce, and had assumed considerable dimensions, of a fungous character. The man's general health was good; and no glands of the groin were affected. He had had a congenital phymosis, which he had slit up himself some years ago. Amputation of the organ was performed by Mr. Erichsen, with the removal of a good portion of the penile integument, to prevent undue retraction of the stump within it. The section of the diseased mass showed the disease to be confined almost solely to the prepuce, but the septum between the corpora cavernosa and spongiosum was certainly thicker than natural, but we can hardly suppose it to be the result of the disease.—*Lancet, Jan.* 2, 1858, *p.* 12.

DISEASES OF THE SKIN.

77.—ON IDIOPATHIC ERYSIPELAS, WITH REMARKS ON THE OLDEN AND THE MODERN TREATMENT OF THE DISEASE.

By Dr, Joseph Hall, late Physician to the Glasgow Royal Infirmary.

[The supervention of delirium in the course of erysipelas always demands the free use of stimulants. Dr. Todd remarks on this subject:]

"Sometimes," he remarks, "in the course of an attack of erysipelas, the patient may become delirious, or he may fall into a state of coma. When this occurs, some authors would tell you that the erysipelas is inducing inflammation of the membranes of the brain. These notions are now almost entirely exploded, and there is ample evidence, that if death takes place while the patient is in either of these conditions, the cerebral meninges are found, upon post-mortem examinations, to all appearance perfectly healthy; or if there be anything amiss with them, it is that the vessels of the pia-mater contain rather less blood than they ought to do, and that none of the products of one inflammatory process can be detected. It is during the first fourteen days of the illness that these formidable symptoms are most apt to occur. Hence the necessity of beginning early, from the first, with the supporting and stimulating treatment, which you will find a preventive both of delirium and coma. The lower you keep your patient, the greater will be the tendency to delirium and coma, and the more violent or profound will either be; and the development of either is an indication for pressing that treatment in the same or greater doses. . . . . . In those cases in which the disease responds to the stimulating treatment, the delirium subsides and speedily altogether disappears—the redness and swelling diminish—the pulse becomes softer, fuller, and less frequent—the fever decreases, and the state of convalescence is rapidly established."

[With this the author's own experience entirely coincides. He relates eleven cases of erysipelas, which may be divided into three classes:—1. Mild; 2. Severe; 3. Very severe.]

The treatment in all was of a supporting and stimulating character. In the milder cases, either no wine was used, or the quantity was small. In the more severe instances, though some of the patients might have recovered without wine, yet a comparison of the increasing exhaustion which preceded, and the rapid improvement that followed its use, forces me to the conclusion, that the favourable progress was chiefly owing to its influence. In the very severe cases I feel convinced, that had stimulants not been freely employed, the patients would not have recovered.

It is about thirteen years since I commenced to employ stimulants in the treatment of erysipelas. I may remark that both this plan of treatment, and the circumstances demanding it, were almost unknown to me when I came to reside in Glasgow. In the country, I have found it necessary on more than one occasion, to bleed both locally and generally, and with a very beneficial result. Even in milder instances, purgatives, diuretics, and diaphoretics, were always freely employed with advantage; whilst, in the more severe attacks, leeches to the nape of the neck, moderate general bleeding—puncturing the inflamed integument with the point of the lancet, proved most salutary remedies. In a few words, the treatment was antiphlogistic in

the severe cases, moderately so in the milder instances, and supporting, in cases complicated with either old age, infirmity, or typhus, &c.

The last case in which I employed bloodletting occurred to me shortly after I came to reside in town. I was called to see a stout-looking man, labouring under a severe attack of erysipelas of face and head. The integuments were immoderately swollen, red, and exceedingly painful. He also complained of severe headache. He was sleepless; pulse full and frequent. His bowels had been freely moved by a purgative before my visit. I bled him from the arm to twelve ounces, and punctured the integuments of forehead with the point of the lancet, as recommended many years ago by Dr. Dobson. About eighteen hours after this, I was again desired to see him, in consequence of his having become delirious. I found him exceedingly weak; face livid; pulse extremely feeble and fluttering. He lay on his back, with his mouth partially open, and muttered occasionally a few unconnected words. I immediately ordered him a wineglassful of whisky, and remained to observe the effect. This was so beneficial at the end of an hour, that I gave him half the quantity, and left directions that he should have a glass of wine every four hours. Next day he was greatly improved; the wine was reduced to a glass every six hours. The patient recovered.

My next patient was a girl, aged 17 years, of a weakly habit; she had never menstruated. The erysipelas was severe, extending not only over head and face, but spreading down the neck, and greater part of chest and upper extremities. I did not venture to order this patient any reducing remedies. At first she had plenty of beef-tea, and at the end of the week she was ordered wine in moderate quantities, the effect of which was very beneficial. In every other instance of the disease which I have had since under my care, the treatment has been more or less of a tonic and stimulating character.

Though I have reason to believe that the great majority of the medical men of this city have been employing a similar line of treatment during several years past, yet there are probably few who have made the same rapid transition from the antiphlogistic to the stimulating plan. This change of practice did not arise either from any defect of the former method, or from any new opinions regarding the pathology of the disease, but entirely in consequence of the patients whom I have seen in Glasgow being incapable, not merely of bearing active measures, but positively requiring the aid of stimulants. I was the more easily induced to adopt the use of wine, from having read a most excellent paper on the subject by the late Dr. Robert Williams, from whose work I have already quoted two cases. This [illegible]e contribution was first published in the Reports of St. [illegible]s's Hospital for the year 1836, and afterwards incorporated into his work on Morbid Poisons. "The profession is indebted to this philosophic physician for having introduced, at least in modern times,

the stimulating treatment of idiopathic erysipelas. He was led to adopt this plan from theoretical considerations. Erysipelas, he conceived, depended on the presence of specific poison in the blood, the cutaneous affection being the mere local manifestation of the malady. The disease, he believed, was thus allied to typhus and similar diseases. He, consequently, inferred that the same supporting plan of treatment was demanded.

Other physicians attached to the London hospitals adopted the treatment, and have expressed the strongest opinions regarding its efficacy. No one has done so more frequently, forcibly, or ably, than that most distinguished physiologist and clinical physician, Dr. R. B. Todd. In the excellent lecture from which I have already quoted, he states, that—

"The treatment for erysipelas which I have for many years past adopted is the stimulating and supporting plan; and this I would, from a long experience, recommend to you, under the conviction that it is the best adapted to save life, check the progress of the disease, and that under it you will seldom have to deal with the secondary phenomena of the malady. . . . . The upshot of all I have to tell with respect to the treatment of erysipelas is, to give stimulants and nourishing food freely, and from the very commencement of the attack. . . . Now, of all the stimulants, I believe, as I have already said, the alcoholic are the best; and I have witnessed such remarkable effects, in such a variety of cases, produced by their free exhibition, that I am inclined to consider them as *antidotes* to the erysipelatous poison; and if I were restricted to any one remedy in the treatment of this disease, I should assuredly choose brandy."

The same stimulating and tonic plan of treatment is employed by every physician and surgeon of note in London. In Edinburgh we find the same tendency to place confidence in tonics and stimulants. For instance, the use of the muriated tincture of iron, introduced by Dr. G. H. Bell, and since so universally employed not only in the northern metropolis, but throughout the country.

In Glasgow, whilst I believe that the great majority of practitioners employ the same method, yet I am aware that we have still a few adherents to the doctrine of *depraved secretions*, and who denounce the poor innocent liver as the fountain of all the evil, and load the patient with blue pills, and drench him with aperients.

The results of my own personal experience, and the quotations which I have made from recent writers on the subject, I think, justify the two following conclusions:—1st, That the stimulating treatment of erysipelas is the plan generally adopted at the present day. 2nd, That the results which have followed its employment establish its correctness.

It is not contended, however, that stimulants will prove infallible; but I affirm that when they fail, nothing else will succeed. The disease sometimes presents itself in a most formidable form; indeed,

without impropriety, it might be denominated malignant. I have seen two cases of this description—one in the practice of the late Dr. Moffat of this city, and the other was a patient of Dr. Lyon. In both instances stimulants proved useless. The one patient died on the tenth, and the other on the eighth day. In these cases, great depression of strength, a soft, irregular pulse, were prominent symptoms from the first. The countenance had a bloated appearance; the colour of the skin was dingy from the commencement, but became livid as the disease progressed. The cerebral functions soon became disturbed. The patients became comatose and rapidly sunk. Such cases have been described by several writers, under the specific name of Œdematodes, especially by Willan, Bateman, Pearson, &c. They correspond with the fifth class of Dr. Todd. I repeat that whilst, in such intense effects of the morbid poison, stimulants may prove powerless, yet their free administration is the best antidote which we have in our power to employ.

Though it should be argued that I have placed too much weight on the share which the stimulants had in promoting recovery in the other cases, yet no one will contend, that the employment of antiphlogistic treatment would have proved as successful.

It appears to me that there are only two ways in which the type of erysipelas can be modified. *(a.)* The intensity of the exciting cause. *(b.)* The constitution of the patient.

(a.) Erysipelas, like other maladies of the same class, arises from a morbid poison, either generated within the body or absorbed from without. The amount and intensity of this poison will certainly modify the type of each case. This fact, to some extent at least, would afford an explanation of the change under discussion. But, unfortunately, we have no means of demonstrating that this morbid poison has increased in malignancy, except the modification of the symptoms, which are its effects.

(b.) If the above supposition be erroneous, then we are driven to the conclusion that the human constitution must have undergone some process of deterioration, by which our patients are rendered less able to resist the influence of morbid agencies. Some writers settle this question in a very summary manner, by appealing to the heroic deeds of our soldiers at Alma, Balaklava, Inkerman—and, we add, their glorious victories achieved on the burning plains of Hindostan, under their gallant leaders, Neill, Havelock, Nicholson, Campbell, and a host of others equally brave and distinguished. These, certainly, are deeds of valour, exertions as intense, as those which characterised our armies under the Black Prince in bygone days, or under Clive a century ago, or under Wellington in more modern times. Whilst our hearts throb with exultation, as we contemplate such magnificent manifestations of the physical energies of "Briton's warriors," yet such glorious and unsurpassed exhibitions furnish no evidence, yield no proof, that a deterioration has not taken place in

the constitutional powers of the general community, rendering its members less able to resist the causes of disease.

We must not forget that soldiers are selected men, and are disciplined into the capability of undergoing protracted and powerful exertion; therefore their power of enduring fatigue forms no criterion from which an opinion can be deduced regarding the condition of the general mass of the people. When we look at the state of the inhabitants of our large cities, we find in operation many new and potent agencies by which the constitutional powers of these people are rendered much less able to resist morbid forces. Accumulations of filth, bad water, overcrowding, defective ventilation, adulterated and unwholesome food, unhealthy occupations, luxurious living, intemperate habits, and moral contaminations of every character, have all been rapidly on the increase during the last thirty years. A very brief consideration will convince us, that though people living under such influences may enjoy a tolerable amount of health in ordinary circumstances, yet, if subjected to any unusual force, whether endemic or epidemic, they will be much less able to resist the depressing influence than if they had been placed under more favourable sanitary conditions.

The history of all epidemics corroborates these views. Is it not the weakly, the ill-fed, badly-lodged, and the intemperate, who suffer most severely during the prevalence of such maladies? Do not typhus and cholera ravage our cities, and leave the rural districts almost scatheless? That man must have been totally unobservant of the changes through which society has been passing during the last thirty years, who will deny that debilitating agencies have been increasing to an extent unparalleled in the history of this part of the world. These circumstances I contend are not mere speculations; they are existing realities; and their effect in impairing the human constitution cannot be questioned.

The above considerations, I consider, render it highly probable that the change which, of late years, has been manifested in the type of disease, has arisen principally from the reduced stamina of the patient. At all events, it is a sophism to bring forward the prowess of our armies as an objection to this view. Such a mode of reasoning may be patriotic and plausible, but it is very illogical.

At first sight it may appear to be of no real moment whether we adopt the view that the change in type is owing to the state of constitution, or that it arises from an increased intensity of the peculiar morbid poison which excites the disease. I think that we should not hastily adopt the latter opinion, because this modification of the exciting cause is beyond our powers of control. In consequence of the impenetrable darkness with which such morbid agents are surrounded, we are not likely to discover any means by which their malignancy can be mitigated. Under these circumstances, if we believe in the increased-intensity doctrine, we shall in all probability fall into mere

speculations regarding certain cycles through which these morbid poisons revolve, being more potent during one series of years than another. Indeed, we find that some writers have already announced such opinions, and hesitate not to predict that, sooner or later, we shall have a return to a sthenic type. Without denying the possibility of such an occurrence, I beg to repeat that, in the meantime, we should admit such doctrines with great caution; because we may be induced to withdraw our attention from the more important and more practical point, namely, the deteriorated state of the constitution of the patient; and in this way a check would be given to determined and persevering efforts to remove the causes by which this impairment of the general health of the community is produced.

Another objection—at first sight a rather formidable one—may be brought against the views which I have advocated. It may be said that, as the duration of life has increased rather than diminished during the last half century, therefore, no degradation of the human constitution can have taken place. A little consideration will show that this objection is illogical.

In the first place, we cannot rely on the accuracy of the mortality returns that were made fifty years ago.

Secondly, Though the average value of life has increased, yet between particular localities marked differences exist. From undoubted returns which have been made by the Registrar-General, we find that the inhabitants of London would in a few years become extinct, if it were not owing to the influx from the other parts of England. The same remark will apply to our own large city. Again, we are informed by the returns of the Registrar-General, that the deaths nearly double in large towns the mortality in country districts. To what cause or causes are we to attribute this amazing disparity? Is it not to the very contaminating influences which I have enumerated?

But thirdly, it must be kept in mind that I am not contending for a deterioration that shortens the period of human existence, but simply for an impairment of vigour, which offers less resisting power to the depressing effects of morbific agents. I believe that patients labouring under asthenic disease, if properly treated, have at least as good a chance of recovery as those who are subjected to sthenic attacks. The duration of life, however, has nothing whatever to do with the present subject; it forms a totally different question. It is an obvious fallacy to argue, that the *increased value of life* disproves *a feebler state of constitution.* I merely contend for a deterioration, the existence of which, it will be easy to show, must be admitted by these very objectors. Let me ask an explanation of the following circumstances:—Take two men, A and B. Both are exposed to the poison of small-pox. A has a robust constitution, and the disease presents sthenic characters, and will not demand a stimulating treatment. B, on the other hand, has a feeble constitution; and we find his case to be of an asthenic type. He will require support, and even stimula-

tion. It will be readily conceded, that the *difference between the constitution of these two men is the correct explanation of the dissimilarity in the type of the two cases.*

Let us expand the argument a little. Suppose that out of 100 patients seized with typhus, 20 have a strong and 80 a weak constitution—the former will present examples of a sthenic, and the latter of an asthenic type. The explanation will be same as in the individual instances of A and B. Let us next extend the argument to the facts of the case under discussion. Forty years ago we find that, in a large majority of the patients attacked with erysipelas, the disease was of a sthenic character, and was treated successfully by antiphlogistics. We also know that, at the present day, the disease generally presents itself in an asthenic form, requiring the use of stimulants. From these circumstances we are as much justified to conclude that this change of type has resulted from constitutional differences between the two classes of patients, as we are to draw the same inference either in the cases of A and B, or of the 100 patients. That which explains the difference between the types of the disease among our own patients must also apply to the difference between the type of the disease that existed forty years ago, and that which we meet with at the present day. To make this still more forcible, let us throw the argument into the following syllogisms:—

(*a.*) Patients of a robust constitution have diseases of a sthenic type;
Thirty years ago disease was of a sthenic type;
Therefore, the patients thirty years ago had a robust constitution.

(*b.*) In patients of a feeble constitution disease assumes an asthenic type:
At the present day disease is of an asthenic type;
Therefore, patients at the present day have feeble constitutions.

In conclusion, I beg to observe, that though the morbid poisons from which erysipelas and other allied diseases originate, be beyond our control, yet we have it in our power to remove those causes which tend to prepare the people for the action of these poisons—causes which unquestionably render communities much more liable to become the victims of such diseased influences.

By improving the sanitary condition of our cities, large towns, and villages—by reforming our personal, domestic, and social habits, we shall most effectually diminish the power of morbific agents.

It must, therefore, be obvious, that the views which I have brought forward regarding the cause of the change of type lead to important practical results. It seems to me that the present asthenic character, not only of erysipelas, but of other diseases, whether specific or not, furnishes the most powerful argument which the sanitary reformer can bring forward, to urge upon the public mind the necessity of hygie-

nic measures, and thereby to secure the community from the baneful effects of the contaminating influences by which we are surrounded.

The disuse of the "*lancet*"—a theme of complacent boasting with some—we see has not arisen from the more correct teachings of modern medical philosophy, but from the diminished tone of the constitutional powers of the patient. Instead either of denouncing the heroic treatment of our predecessors, or of lauding the milder practice of our own times, we should rather lament the existence of causes, by which sthenic diseases requiring heroics have become the exception, and that asthenic affections, demanding stimulants, have become the rule. We perceive that the difference between the respective plans of treatment holds an intimate relation to the dissimilarity of type. We can claim no credit for the superiority of modern practice. It has not arisen either from the advancement of science, or from our superior wisdom, but from the change that has taken place in the type of disease. At one period, doubtless, heroic remedies, especially bleeding, were used by medical men indiscriminately and lavishly; but this was mere abuse, and does not authorize either the total condemnation or abolition of all active treatment.

We must take care to avoid the opposite error of our predecessors. We must beware lest we fall into the habit of treating all cases as asthenic, and neglect to discriminate those instances in which antiphlogistics should still be preferred to stimulants. Such cases, though exceptional in towns, yet I believe vastly predominate in agricultural districts, and demand, even at the present day, the active treatment generally adopted in bygone times. In all ages, routine has been the bane of medical practice, and will continue to be so, so long as we remain indolent, lethargic, and unreflecting. Surely it is our duty to use every effort in our power, to destroy the supremacy of a system so degrading to our profession, and so disastrous to humanity.

From the facts and reasonings which I have brought forward in the foregoing pages, the following conclusions may be deduced:—

1. That erysipelas, at the present day, requires a tonic and stimulating treatment.

2. That the antiphlogistic treatment employed by medical men at a former period was then justified.

3. That the type of the disease has undergone such an important change as to demand this alteration in the treatment.

4. That the change of type depends principally, if not wholly, on a deteriorated condition of the constitutional powers of the inhabitants of large cities, towns, and populous villages.

5. That the causes of this loss of tone in the human constitution are either capable of complete removal, or, at least, of very important amelioration.—*Glasgow Med. Journal, April*, 1858, *p.* 27.

78.—ON THE TREATMENT OF ERYSIPELAS.

By Peter Hinckes Bird, Esq., Author of the Jacksonian Prize Essay on Erysipelas.

The treatment of erysipelas may be divided into *preventive* and *curative*. The former will include all means which tend to obviate the causes, and prevent the extension, of erysipelas and its allied diseases, the prevalence of which forms a test of the sanitary arrangements of hospitals; in which institutions, unfavourable locality, dampness of the surrounding soil, imperfect drainage, choked sewers, deficient ventilation, uncleanliness, and over crowding, concur for the production and spread of these diffuse inflammations. Hospitals should have large and airy wards for the patients to feed, exercise, and amuse themselves; the floors should be dry rubbed, and polished, not washed, for damp favours miasmata; and every precaution should be taken against fomites and infection, by the closing and fumigation of infected wards, the total destruction of all dressings and bandages used, and the substitution of tow, &c., for sponges in the dressing of wounds. Charcoal, hung around the bed in coarse muslin bags and trays of the same placed by the bedside, is well worthy of trial.

Having so fully proved the alliance existing between erysipelas and puerperal fever, no practitioner can be sufficiently cautious in going from a case of this disease to a woman in the parturient or puerperal state; the annals of medicine contain fearful and heart-rending evidence of the mortality caused by inattention to this most important fact.

The profession is not now "quite at a loss to discover in this affection those marks of debility which some have so much insisted upon," but believing it to be a disease of debility, that is occurring in an enfeebled constitution, almost universally treat it by stimulants and by the free and steady administration of nourishment: frequent and large doses of brandy, beef tea, quinine, ammonia, chloric ether, &c., should be given, and attention paid more to the state of the pulse, than to that of the secretions. In rural districts, among a hardy and robust population, a more marked inflammatory form will be benefited by purgatives, and slight but not too lowering antiphlogistics; and an intermediate class of cases will require some modification of treatment; each case presenting its own peculiarities and indications on which the necessity, and the proper time for the administration of stimulants must depend.

Opiates must be given with great caution—they are contra-indicated in cerebral congestion and coma; in one case of this kind, death so rapidly followed their administration as to appear to be the cause of the unfortunate event—in these cases the milder preparation of hyoscyamus is to be preferred; but to lessen pain and irritation, tranquillise the system, and procure sleep, they are of much service in the latter stages, and more severe forms of the disease. For this, they

should be given in sufficiently large doses to produce the desired effect, small doses only adding to the febrile excitement, and rendering the head more liable to become affected. In cases attended with violent delirium, I have seen the hydrochlorate and acetate of morphia, in grain doses, produce a most beneficial effect.

In desperate cases, with intense coma, and typhoid symptoms, turpentine has produced good results; its purgative action should be decided, otherwise it is apt to cause unpleasant head symptoms; it should be given in doses of ʒij. to ℥iv., with one-half or two-thirds the quantity of castor-oil.

When diffuse inflammation is spreading down the larynx and trachea, tracheotomy is imperatively called for; indeed it is the only means, combined with the free administration of stimulants, which offers any chance of success.

The experience I have had of the now vaunted remedy, tincture of the sesqui-chloride of iron, is not at all in its favour when compared with alcoholic stimulants, to which it may in some cases be a useful adjunct. It is especially indicated in albuminuria coincident with, or consequent on general erysipelas, of which I have met with three cases.

Cases of chronic erysipelas are very difficult to cure; the local symptoms never altogether disappear, and are apt to become aggravated at short intervals on the least irregularity of diet or from external impressions, and often without any evident cause. In these cases the functions of the stomach and liver are often disordered, and the secretions consequently vitiated; these conditions must be rectified by a course of alteratives, aperients, and tonics—such as iodide of potassium, alkalies, and sarsaparilla, preparations of zinc and iron.

With regard to local treatment, I am not aware of any that will cut short the disease; in the uncomplicated variety, collodion, or gutta percha dissolved in benzule, forms an elegant remedy; and in uncomplicated erysipelas of the face, punctures relieve the distention; but the most agreeable application will be found to be that of lard and cotton wool, after relaxing the skin by warm fomentations. In uncomplicated erysipelas of the extremities, a perfect line of nitrate of silver, at least three inches above the line of disease, in nine cases out of eleven proved a sure barrier. Where an interstice has been left, I have seen it creep through, and spread.

In the variety complicated with diffuse inflammation of the cellular tissue, the early use of small incisions when the skin is hard, tense, and resisting, and the pain severe and throbbing, is much to be recommended; the grand object of these should be the prevention, rather than the removal, of the effects of inflammation; or in other words, they should give exit to blood and serum, rather than pus and sloughs.

From all I have seen and read of this disease, I can discover no argument for delaying, but many for immediately resorting to them;

by thus acting, and combining frequent syringing with tepid water, and repetition of incisions if necessary, we may be truly "at a loss to name a more valuable accession to the art, of modern date, than that for which the profession stands indebted to Mr. Copeland Hutchinson." M. Chassaignac, of the Hôpital Lariboisiere, drains off the matter by means of India rubber tubes, perforated at various parts of their length, so as to facilitate the flow of the discharge along them.

In chronic erysipelas, a solution of the nitrate of silver should be frequently applied, or small blisters at short intervals at a little distance from the affected part; occasionally, when these fail, an issue in the arms effects a cure.

To conclude, then, erysipelas is merely an example on the skin of that diffuse inflammation, which in other tissues constitutes diffuse inflammation of the mucous membrane, diffuse phlebitis, puerperal fever—all of which have a common origin, a poison in the blood, are infectious and contagious, and may mutually produce each other.

The term erysipelas should be confined to diffuse inflammation of the skin and subcutaneous cellular tissue.

Erysipelas is best treated by stimulants and support, and when complicated with inflammation of the subcutaneous cellular tissue, by early incisions which should extend to the depth of the disease.—Midland Quarterly Journal, Vol. 1, 1857, p. 13.

79.—ON SOME AFFECTIONS OF LYMPHATIC GLANDS.

By James Paget, Esq., F.R.S., Assistant Surgeon to St. Bartholomew's Hospital.

A form of Acute Inflammation of Lymphatic Glands often occurs, in which all the glands of a cluster appear to coalesce in one swelling, involving both themselves and the tissues between and about them, and accompanied with uniform induration, heat, and pain. The local cause of the disease is seldom evident; it is most frequent in those who are enfeebled by previous illness, or by defective food: its most usual seat is in the glands below the angle and base of the jaw, or in those behind and beneath the upper part of the mastoid muscle. In the former situation, the glands swell out to the level of the jaw, or beyond it, and may feel as if adherent to it; in the latter, being bound down by the tough fascia, they are less prominent; but, in both places, they make swellings of remarkable hardness, with a nearly uniform flattish presenting surface The integuments over them are usually somewhat œdematous, but not reddened in proportion to the severity of the deeper inflammation.

In the progress of this disease, which is usually accompanied by sharp inflammatory fever, it is common to find one or two small suppurations, as if one gland in the cluster had suppurated, while the rest remained swollen and hard. The finger passing over the diseased

part sinks in as it passes on some small yielding spot; there is no distinct fluctuation, but a circumscribed softness.

It will be found, I believe, an excellent rule to puncture this soft place as soon as ever it is detected. Usually, after such an opening, the pain is quickly relieved, and the rest of the swelling gradually subsides, without any extension of the suppuration. The opening may be small (half an inch or less long), but may need to be rather deep. All that seems necessary is the discharge of even a few drops of pus, and then the leaving the part quiet, with warm moist applications over it. If such an opening be not made in due time, extensive suppuration is nearly sure to ensue, and greatly increase the duration and mischief of the disease.

The rest of the treatment of such cases must usually consist in giving bark, warm purgatives (if any), good food, and in applying warm poultices or water-dressing, and fomentations to the inflamed part, both before and after the puncture.

Suppuration of Strumous Glands.—The great number of strumous children that come to out-patients' rooms with slowly suppurating cervical and other lymphatic glands, supply, I believe, evidence enough that the best plan in all such cases is to leave the suppuration to increase till the skin over it is so thin, that one might think that in a day or two spontaneous ulceration would ensue. The thinnest part of the skin should then be punctured with a small knife, so as to make an opening not more than two lines in length. Through this opening the pus should be allowed to flow out slowly: the abscess-walls should on no account be pressed. If the pus will flow in mere drops, it is well; if it stop altogether, no harm will follow. No more should be done than to cover the abscess with a soft poultice or with warm water dressing, which should be removed twice or three times a-day. The abscess thus treated will slowly empty itself, as the inflamed and stretched skin slowly recovers its elasticity and contractile power; or if the little wound should heal before the emptying, it will in a day or two reopen; or, at the most, the puncture may need to be repeated. The advantage of the plan is, that the punctured skin does not ulcerate or slough, the abscess-wall does not inflame, and recovery ensues without disturbance of the general health, and with a scarcely visible scar. In the great number of cases that I have thus treated, I do not remember to have failed to obtain these advantages. Usually, the healing of the abscess is completed within three weeks,—in strong contrast, as to both time and manner, with the tedious healing and ugly scarring that often ensue when these abscesses are left to open spontaneously, or are opened widely with the knife or caustic.

The internal treatment which I have always employed in these cases when suppuration has taken place (and which, if any, will prevent its occurrence), is the giving of tonics, or iron, and good food. The medicines for children may be, according to the case, from two to [illegible] grains of the potassio-tartrate of iron, or from five to ten grains of the

liquor cinchonæ, or a drachm of the cod-liver oil, three times a-day. The first I think best in ordinary cases, in which the characters of struma are well marked, and not complicated; the second appears best when with struma there is marked debility, drooping, deadly pallor, duskiness; and I think it is a very good plan to give the bark with lime-water; the third seems fittest when great emaciation exists. In all cases it appears useful to give occasional small doses of the hydrargyrum cum cretâ, with rhubarb or the sesquioxide of iron. I doubt whether iodine does good in any of these cases, unless in combination with iron.

Strumous Inguinal Glands.—Among the affections often wrongly classed with the syphilitic, is a form of suppuration in the inguinal glands, which is apt to occur in those that are enfeebled and of strumous constitution. The confusion of it with syphilis is probably due to its often occurring after gonorrhœa; but it is often seen with no such connection, and when it does follow gonorrhœa, it is often so late after the cessation of the discharge, that we can only ascribe its occurrence to the general debility which gonorrhœa is apt to produce in weakly persons.

The disease may affect the glands both above and below the crural arch, or either of these sets separately; and the feature which most certainly distinguishes it from syphilitic glandular disease is, that the inflammation, which leads slowly to suppuration, appears to involve separately each gland, with its immediate investments. The glands are not collected, as in one inflamed mass: neither is there much external swelling, or much inflammation around the proper substance of the glands; but they lie separately swollen, and commonly the skin over each, though scarcely, if at all, elevated, appears as a separate small red patch. When suppuration ensues, each gland suppurates and opens separately, or with subcutaneous narrow tracks of communication with the rest. Thus, late in the disease, we may see one or both groins, with two, three, or more openings, leading to as many suppurating cavities or tracks extending under comparatively healthy skin.

In all the characters just described, this disease of the inguinal glands bears the admitted marks of usual, but not constant, distinction between syphilitic and strumous inflammation; of the former as leading to suppuration about the glands, the latter to suppuration in them. And, in correspondence with this, the usual characters of strumous inflammations are noticeable; such as the pale rosy redness of the inflamed integuments, the thinness of the pus, the general tardiness of both the suppurating and the healing process.

The best treatment appears to be, when suppuration has not yet ensued, the giving of iodide of iron, in doses of about a drachm of the syrup thrice daily, with occasional aperients, good food, and the constant application of warmth. If the glands have suppurated, each, when the skin is thin or feels undermined, should be punctured

with a small knife; and the pus may be allowed to flow out slowly without pressure. The general treatment after puncture may be the same as before; and if the abscess-cavities appear very tardy in healing, lotions of nitrate of silver should be dropped into them, or, if there be sinuses, they should be injected with solution of iodine. Complete rest is not necessary; the general advantage of moderate exercise in the open air is greater than the injury done by moderate movements of the groins.

I know no disease in which the iodide of iron does so much good as in this; and it appears better than any other preparation of either iodine or iron, and better than bark in any form.

Cancerous Lymphatic Glands.—Few diseases are so insidious in their early progress as primary cancer in the cervical lymphatic glands. Beginning like an ordinary hypertrophy or chronic inflammation of the glands, it may advance far without exciting much, if any, suspicion of its terrible nature. Then, as the swelling increases, and, if increasing rapidly, becomes softer at its most prominent part and covered with florid skin, the imitation of suppuration may be so close as to deceive the most practised touch. Puncture by mistake may now discover what is going on; but in some cases, it may only prolong the oversight; for suppuration may have taken place in the substance of a cancerous gland. I have even seen repeated collections of pus in a cluster of cancerous glands emptied by repeated punctures, prolonging the belief that no cancerous disease existed, though other signs of its presence seemed distinct.

I cannot tell how this error of diagnosis may be always avoided; but the following may be useful helps. In patients of middle or older age, all enlargements of cervical glands, that are not evidently inflammatory or sympathetic, should excite some suspicion of cancer. The suspicion should be the greater the older the patient is. It must be increased, if the glands affected are under the upper part of the mastoid muscle, and still more if they are under the middle of the muscle. It is a bad sign when they form a close compact cluster, or when after puncture, the swelling does not at all subside: and equally bad when the swelling, as it increases, becomes less moveable. The harder the glands are at first, the more they must be feared; and the probability of cancer is greatly increased if the patient loses weight and strength, or, is a member of a family in which cancer has occurred.

The difficulty of diagnosis which is here referred to occurs most commonly in cases of primary cancer of the glands: but it may occur also in those of secondary cancer; for the disease in the glands may so predominate over the primary disease in the tongue, mouth, or jaws, that of this the patient may know little and say nothing. All these parts therefore should, in every case, be carefully looked to.—*Med. Times and Gazette, Jan. 2,* 1858, *p.* 4.

80.—*Powdered Chlorate of Potash as an application to Ulcers, &c.*—For some time past, at the Metropolitan Free Hospital, Mr. HUTCHINSON has employed the powdered chlorate of potash as an application to cachectic ulcers. In most cases it appears to exert a very beneficial influence, speedily inducing cicatrization; and it is very convenient of use. The cases in which it has best suited have been some of ulcers of the leg, open buboes, simple sores on the skin of the penis, and cracked nipples. In the latter it answers admirably. The salt should be powdered very fine and dusted into the sore with the finger. It produces sharp smarting for a short time, but the pain soon subsides. In most cases suitable for its use it is also desirable to prescribe its internal administration; but with a view to making the experiments more conclusive, in the cases upon which Mr. Hutchinson founded his opinion of its efficacy, no other treatment was adopted.—*Lancet, Dec.* 26, 1857, *p.* 648.

81.—*Subcutaneous Operation on Varicose Veins.* By HENRY LEE, Esq.—In my first attempts to perform this operation, I cannot say that my success was quite such as I could have wished, and, indeed, expected. One case in particular had some severe local and constitutional symptoms, and I had reason to believe that an abscess had formed in the vein, where it had been traversed by one of the needles. Reflecting subsequently on the cause of this, I became convinced that the origin of the mischief was, that the needle had pierced the vein instead of being made to pass fairly under it. In subsequent operations this point was attended to, and performed with due precaution, as it has now been by Mr. Erichsen, and various other surgeons, a great number of times; it has not, so far as I am aware, been attended with danger. During the last twelve months a further improvement, as I conceive, has been effected in regard to this operation. The vein is divided as soon as the needles have been placed under it. The subcutaneous incision heals in about the same time as in the other operation, and the confinement of two days previous to the section of the vein is avoided. In this operation the blood which the vein contains between the two needles is allowed to flow out of the incision, and thus any tendency that there might be for stagnant or effused blood to decompose, is avoided. In performing the operation in the manner now described, the blood contained in the veins between two needles escapes; the sides of the vein necessarily fall together, and are maintained in apposition. The sides of the vein compressed by the needles and ligature suffer no violence or injury. The subcutaneous incision is pretty sure to heal by first intention, and even should it not, the vein being closed above and below, no diseased secretion can find its way along its channel. Various cases were given to illustrate the different modes of producing obliteration of veins by subcutaneous division.—*Lancet, Jan.* 2, 1858, *p.* 19.

82.—ON THE TREATMENT OF IN-GROWING NAILS.

By JAS. LONG, Esq., Surgeon to the Liverpool Royal Infirmary, Lecturer on Surgery in the Liverpool Royal Infirmary School of Medicine.

The following simple plan of treating in-growing nails I have practised for nearly thirty years; having first had recourse to it on myself after having suffered six weeks from that troublesome affection.

The treatment is so simple and natural, that I should not have submitted it to the notice of the profession, had I not found that although it has long been practised by some, and has at my suggestion been adopted by others, it is not generally known, and that in the various methods that have formerly and recently been brought forward to remedy this annoyance, the exact plan that I pursue has not been adopted. It is painless and effective, but to render it so, certain minutiæ must be attended to: these I shall now detail.

Suppose the border of the great toe-nail deeply imbedded in the soft parts, with florid irritable granulations projecting over it, and suppuration extending along the root of the nail, the person unable to put his foot to the ground, or to bear the slightest touch on the irritable part. I first wash the toe in tepid water, and make the parts as dry as possible with cotton wool. I then, with the flat end of a very fine probe, insinuate between the nail and the granulations a little cotton wool, which I extend backwards along the groove between the base of the nail and cuticle. I next freely rub *the nail* with nitrate of silver, close to the cotton, not allowing the caustic to touch the granulations; and lastly, place a thin layer of cotton wool around the toe.

If examined in two days or so, the state of the parts will be found as follows:—The nail will be perfectly black, and detached from the parts underneath to a greater or less extent; the cotton wool, by its imbibition of the caustic and secretions, will have become converted into a hard bluish substance; the granulations will have receded from the nail, and their extreme sensitiveness will have disappeared. The dead piece of nail can then be easily removed by [illegible] pair of scissors introduced underneath it, and a little cotton wool, carefully introduced into the gap, will, in a simple case, complete the cure.

Should the nail be very thick, it will be necessary, after the first application of the caustic, to scrape off the dead and blackened surface, and apply it a second time before the nail becomes so permeated by it as to lose its connection with the parts beneath. A third application is rarely required. By applying the caustic over the whole nail and around its base and borders, and pushing the skin back by means of cotton wool introduced between it and the nail, after each application, the whole nail may be removed without pain. The recurrence

of the growth may be prevented by scraping the middle of the body of the nail from time to time, so as to keep it thin, introducing at the same time a little cotton wool along its border.

Dr. Nevins has directed my attention to the following remarks on the above subject in his Translation of the Pharmacopæia, in the article on Nitrate of Silver :—"*Previous to the removal of the nail*, the moistened nail ought to be *freely* rubbed with this caustic, and in two or three hours a poultice should be applied; this makes the nail soft, and the next day, if the nail be again washed in hot water, it can be dissected with ease from the adjacent tissues, *as far as the caustic has been applied.* By this means the horrible and barbarous operation of tearing out the nail, or a portion of it, by force, may be entirely dispensed with.

"I can speak of this with confidence, having applied it thus in several instances."—*Liverpool Medico-Chirurgical Journal, Jan.*, 1858, *p.* 26.

83.—*On Ingrowing of the Toe-Nail.* By a Subscriber to the 'Medical Circular.'—Ingrowing of the nails is a fallacy; it is the upgrowing of the quick, through exposing the same, and taking away the natural protection and support of the nail itself.

Cut out a piece of the *finger*-nail over the quick, and the same thing takes place, viz., up comes a painful fungus, and down comes the surgeon with his scissors and forceps, and in no time the patient is writhing under a remedy worse than the disease.

The following treatment has been successful in every case which has fallen to my lot, about 140 :—

Soak the part well in hot water, and delicately remove all discharge, pass in plenty of very finely-powdered burnt alum, cover all the fungus with the same, and on the next and every day do the same, until no longer sensitive, then strap down the alum, first putting on the top, not under, a piece of lint.—*Medical Circular, Jan.* 27, 1858, *p.* 38.

84.—*Threatened Gangrene.*—We recently noticed an old man, about sixty-five years of age, in the Charing-Cross Hospital, under Mr. Hancock's care, whose feet were threatened with gangrene, but which has been prevented by the timely application of wadding, thus keeping them warm and encouraging free circulation. He had all the appearance of an imbiber, his nose being of a preternatural redness.—*Lancet, Jan.* 16, 1858, *p.* 64.

85.—*Chlorate-of-Potash Lotion.*—This is frequently prescribed by Mr. Cooke, at the Royal Free Hospital, as an excellent detergent and antiseptic in chronic fœtid suppurating ulcers of the leg or other part of the body. It proves very serviceable

also in ulcers exhibiting a tendency to sloughing. It is composed of half an ounce of the chlorate of potash to a pint of water, with forty drops of strong hydrochloric acid. It is stimulating in its action also, and converts a foul ulcer into a healthy-looking granulating sore. Another form of lotion, which combines the advantages of being, perhaps, more stimulating and less irritating, used occasionally by Mr. Cooke also, is a combination of potash and manganese (a modification of the caustic recently introduced by him), in the proportion of ten grains to the ounce of water. —*Lancet, Jan.* 16, 1858, *p.* 64.

86.—ON A NEW MODE OF TREATING STRUMOUS ABSCESSES.

By Dr. Graves, Cookstown.

He must be a bold man who, in these days of science and of progress, claims for himself the discovery of a new method of treatment. At the risk, however, of being, perhaps, considered egotistical, I am induced to publish a plan which I am satisfied has, in my own practice, proved useful, and to which I have been unable to find any reference in the books at my command; nor have any of the medical friends with whom I have discussed the subject been more successful than myself.

All surgeons are familiar with the class of cases to which I would draw attention, and few but have heartily wished them removed from their care. I allude to subcutaneous abscess, occurring in patients of a strumous diathesis, chiefly met with in the superficial cervical glands —tedious and insidious in their course, and generally, after months of suffering, ending at the best in elevated cicatrices, with wheals and scars; under the most careful and judicious treatment bringing unmerited discredit on the practitioner, and disgust to the patient.

I have had recourse to various expedients—free incisions, valvular openings, poultices, and spontaneous evacuation, with a like uncertain result; presenting the worst appearance, healing without trouble, while others, in every respect hopeful, have baffled all my exertions for months.

Several such were, in dispensary and private practice, under my care during the past year; and seeing that iodine, cod-liver oil, [illegible], &c., applied externally and internally (administered with, [illegible] could be obtained, a generous diet, warm clothing, &c., &c.), [illegible] little benefit, I determined to try the effect of a counter-inflammation; and observing that a thickening and adhesive process followed vaccination, it occurred to me, that if this was satisfactorily established in one of these abscesses, the sac would probably be obliterated without much difficulty.

We all know that, in secondary vaccination, a pustule is produced by the introduction of the virus, after the lapse of a definite number

of days; and though the result may not prove a true vaccine pustule, still the inflammation will, in the majority of instances, possess a specific character. Be the result successful or otherwise, I will feel deeply obliged to any gentleman who will kindly furnish me with the particulars of any cases which he may determine to treat on this principle.

In January, 1857, A. B., a mill-worker, aged 14, of strumous habit, applied at the Cookstown Dispensary, suffering from an abscess of the cervical glands on the right side of the neck, about the size of a nutmeg. The skin was but slightly discoloured, but fluctuation evident. I gave exit, by a free incision, at the lowest part, to a small quantity of matter; then charging my lancet with cowpock infection, introduced it in the usual way, by a few slight scratches at either side of the wound, taking care that it should come as little as possible in contact with the discharge from the wound. On the eighth day it had evidently "taken" well; there was the well-marked inflammation surrounding the vesicles. "On the ninth," as Maunsell and Evanson describe it, "there was formed round the base an inflamed ring, with an areola of an inch and a half or two inches in diameter." In this case the redness was more extensive. On *the twelfth* there was considerable inflammation and hardness all over the surface of the tumour, and very little discharge from the original opening. On *the sixteenth* this had in a great measure disappeared; and when, in about three weeks afterwards, the girl called upon me, the crust had dropped off, there was no trace of the abscess, and very little more scar than is left after an ordinary vaccination. I should mention that this patient had not been previously vaccinated.

In March, E. M., aged 21, a person in comfortable circumstances, consulted me. The history and progress of this case is so similar to that just related, that I need not enter into particulars. The result was alike satisfactory.

September. In the third case, that of C. R., aged 16, in not good health, there were some circumstances that may require notice. She had a tumour on the left side of the neck, about the size of a horse-bean, very red—bluish red—and evidently about to break. Altogether this appeared an unfavourable subject. For some time I hesitated as to the expediency of treating her in a similar manner. The two former cases had given me confidence, and I determined to risk the experiment. Matters went on well till the *ninth* day, when a considerable amount of inflammatory action had set in. From the wound escaped an unhealthy ichorous discharge. I administered an aperient, and ordered quiet, but on the second day after, the *eleventh* from vaccination, there was well-marked erysipelas of the neck and side of face, but, as first observed, I think by the late Dr. Graves, limited by the median line. A linseed meal poultice was ordered, salines and diaphoretics given, and within a week the girl was walking about.

In this instance, I cannot say what was the effect of the vaccine inflammation "*per se*," inasmuch as it was complicated with the ery-

sipelas—it is not easy, among pauper patients, to obtain accurate accounts; but this I do know, that at the end of four weeks the abscess was obliterated with very trifling deformity.—*Dublin Hospital Gazette, Feb.* 15, 1858, *p.* 57.

87.—ON MENTAGRA OR SYCOSIS.

By Dr. Wm. Jenner, Physician to University College Hospital, the Hospital for Sick Children, &c.

This is a disease of the beard, moustache, whiskers, and inner surface of the nares, in which a little fungus finds a nidus between the root of the hair and the wall of its follicle. The plant is the Microsporon mentagrophytes, and it makes its presence known by the inflammation it excites. The inflammation causes thickening and induration of the tissues around the follicle, and suppuration of the follicle itself. As the disease originates in the follicle, a hair may be seen to traverse the centre of each pustule. The pus and epithelium about the orifice of the follicle dry into a thick brownish scab. When the scabs are numerous, and the parts about tuberculated from the swollen and irregular induration around the follicles, the part affected with pus is supposed to have some resemblance to the pulp of the fig; hence the name sycosis. Between the scabs we often find little scaly particles formed of epithelium. Do not confound a variety of impetigo which I shall presently describe to you, with mentagra. The induration and swelling of the tissues is trifling in impetigo. Acne of these parts also may be taken for sycosis, but in acne the induration is greater than in sycosis, and the suppuration less rapid. There is no vegetable parasite in the hair follicles in impetigo, nor in the sebaceous follicles in acne.

Mentagra is often a very obstinate affection. The *treatment* of this disease is to be conducted on the same principles as those of the other affections of its class. Substances destructive to vegetable life are to be applied to the diseased skin; and as the plant is *in* the hair follicles, they must be applied in a form fitted to enter the follicles. An ointment of lard and corrosive sublimate, in the proportion of a grain to the drachm, is sometimes very useful. The white precipitate ointment of the 'London Pharmacopœia' may effect a cure. Dr. Thompson recommends strongly an ointment composed of a scruple of iodide of sulphur and an ounce of lard. Warm fomentations and poultices, by removing the scabs and allaying the inflammation afford much relief to the patient. The condition of the digestive organs must be attended to, and purgatives, tonics, and antacids exhibited as required. A good and generous diet is usually necessary. Epilation is sometimes essential for effecting a cure. I had a case under my care some time since, in which the disease was seated in the hair-follicles, just at and within the orifice of the nares. I cannot tell you how many

quarts of cod-liver oil, gallons of decoction of sarsaparilla, ounces of quinine, iodide of potassium, &c., the patient swallowed, nor how many pounds of ointments innumerable he had applied. He was a druggist, and had kept a careful record of all that had been prescribed for himself, which he read over to me. It was a most ludicrous list, and I was not surprised at his desire to "Throw physic to the dogs." He was well pleased to submit to the removal of the hairs by a pair of forceps, rather than to have to take more drugs; and he was still better pleased when he found how soon the disease yielded to this method of treatment.—*Med. Times and Gazette, Dec.* 26, 1857, *p*, 650.

88.—A MIXTURE OF COLLODION AND CASTOR OIL AS AN APPLICATION TO SEVERE CASES OF BURNS AND SCALDS.

From Notes by P. W. SWAIN, Esq., House-Surgeon, King's College Hospital.

Case 1.—Elizabeth G., aged 78, was admitted into King's College Hospital, on November 27th, 1857, with a severe burn, extending over the front of the chest, as far down as the mammæ, and upwards over the front and side of the neck and both cheeks. In some places the cuticle was much charred; and extensive vesications existed about the side of the neck and face. The accident was caused by the old woman falling forwards on to the fire, whilst reaching up to the mantel-piece.

On admission, the parts were cleansed; the vesications were punctured; the hair was shaved from the front and sides of the head; and an application, composed of two parts of collodion and one part of castor oil, was painted over the entire surface of the burn. This application was repeated three or four times in the course of the day, so as to form a covering, which entirely excluded all contact of the atmosphere. She was ordered ammonia and small doses of tincture of opium every four hours; and, as she was in a very low condition, an ounce of brandy every hour. On the evening of the day on which she was admitted, her breathing became so laboured that suffocation at one time seemed impending; so much so, that, had she not somewhat revived, tracheotomy would have been performed. The foregoing plan of treatment was persisted in up to December 2nd, when for brandy was substituted twelve ounces of gin; and, as suppuration had set in, a linseed-meal poultice was applied over the whole surface of the burn. On December 8th, the slough having separated, and the sore presenting a healthy surface, an ointment composed of an ounce of prepared chalk, two drachms of olive oil, and half an ounce of spermaceti ointment, spread on lint, was applied. Up to the present date (December 10th,) this treatment has been per-

sisted in; the sore is healing; and the woman, whose advanced age precluded almost all hopes of recovery, is in a satisfactory state.

Case. 2.—James K., aged 28, was admitted into King's College Hospital, on September 24th, with a severe burn extending over the upper part of the chest, the front of the neck, the left shoulder, and front of the left forearm. In many places the cuticle was destroyed, and the parts much charred. The patient is subject to epileptic fits, during one of which he fell forwards into the fire, and thus sustained the injury. As in the above case, on admission, the whole surface of the burn was thickly painted over with collodion and castor oil. This treatment was persisted in up to October 4th, when suppuration having set in, a linseed-meal poultice was applied over the parts. On October 8th, the surface of the sore having cleaned, and presenting healthy granulations, it was dressed with compound chalk ointment and olive oil. On October 30th, the sore was reported as being healed over nearly the whole surface; the cicatrix left was of a very slight character, considering the severity of the burn; and some slight contractions which presented themselves on the front of the neck and the axilla were easily counteracted by the application of a simple apparatus.

Case 3.—Abraham F., aged 6, was admitted into King's College Hospital, on December 13th, 1857, with a scald extending over the front of the left thigh and leg, and over the front of the right leg, caused by a kettle of boiling water falling from the fire over him. Several large vesications existed, and in some parts the surface was raw. On admission, the mixture of collodion and castor oil was applied to the parts. The pain, which was at first great, ceased almost instantaneously, and the child has since experienced little or no inconvenience.

Remarks.—The use of this application in burns and scalds, which has now been extensively tried in King's College Hospital, appears to possess many advantages over all others. It affords a coating to the parts which entirely excludes the atmosphere without obscuring the surface of the sore from view. It is by no means a *dirty* application, and possesses a pleasing odour, which counteracts the unpleasant emanations generally attendant on burns. It also appears to have the effect of immediately lessening the pain; and in all the cases in which it has been applied, the sloughs which have subsequently formed have appeared to be much less deep than usual.—*British Med. Journal, Dec.* 26, 1857, *p.* 1059.

89.—ON TINEA FAVOSA.

By Dr. Wm. Jenner, Physician to University College Hospital, the Hospital for Sick Children, &c.

Tinea favosa is a disease of the hairy scalp. Now and then, however, it occupies other parts.

Be it situated on scalp, trunk, or extremities, the disease is primarily seated in the hair-follicles, and is characterized by dry brimstone-yellow crusts, each crust being cup-shaped, and having a hair running through its centre. The size of the crusts varies from a mere point to half an inch in diameter. The separate crusts coalesce as they increase in size and number, and then you have a large, dry, irregularly pitted crust. You will observe that the crusts are buried to some depth in the cutis, so that if I raise one from its place, I expose a depression of the cutis in which it was imbedded. The depressed surface is always redder than healthy skin, but only here and there is the cutis denuded of its epithelial covering. You may observe, further, that among the dry crusts are a few pustules. These pustules are not always present, they are an accidental complication. These pustules indicate the co-existence of impetigo. I have placed under one of the microscopes a little of the fluid from a pustule, and under the other microscope some of the dry powder from a crust. In the former are abundance of pus corpuscles and nothing else. In the latter the sporules and mycelium of the Achorion Schönleinii, and not a corpuscle of any kind. Do not fancy that the dry crusts commence as pustules; the crusts are dry from the moment they are first seen. Note the difference in form and size of the sporules and mycelium of the Achorion Schönleinii and those of the Trichophyton tonsurans. The sporules of the Achorion are oval, and comparatively large; those of the Trichophyton spherical and very small. You can see the mycelium and sporules running upwards and ramifying in the hair which passes through the centre of each little sulphur-coloured cup-shaped crust.

The steps of the disease are these:—first, there is thickening of the root-sheath of the hair-follicle, and accumulation of its secretion about its orifice. So long as there is nothing more than this you are not able to say that any disease exists; but let the sporules of the Achorion fall on the prepared soil, and the sulphur-coloured crusts of Tinea favosa are rapidly formed. The plant grows outwards between the layers of epithelium, downwards into the follicle, and, entering the hair near to its roots, shoots upwards into its substance.

The Tricophyton tonsurans, the plant proper to Tinea tonsurans, grows into the hair-follicle, but its presence inflicts no permanent injury on the structures of the follicle. The Achorion Schönleinii, unless it be soon eradicated, destroys the follicle, and permanent baldness is the consequence.

The crusts of Tinea favosa have a peculiar fœtid odour, and from the impediment they offer to cleansing the head, favour the occurrence of vermin. The pediculi are found chiefly in the large crusts. Intolerable itching is often experienced. There is a variety of Tinea favosa in which the crusts are from the first amorphous, wanting in the cup-shaped character and less bright in colour.

The objects to be kept in view in the *treatment* are to remove or destroy the plant, and to improve the state of the secretions of the part which is its seat. As the subjects of tinea favosa are often strumous, you may find benefit from the administration of cod-liver oil, syrup of iodide of iron, calumba, rhubarb, and soda, and other remedies of the same class. But all other means will fail unless you destroy and remove the plant. For this purpose you employ some of the parasiticide substances, that is to say, substances destructive of vegetable life, and at the same time you must remove by mechanical means as much of the plant as possible.

The crusts are to be removed by a bread and water poultice, or better still, by the continuous application of lint, dipped in a solution of sulphurous acid. Bichloride of mercury, dissolved in water or mixed with lard in the proportion of eight grains to the ounce, and acetate of copper mixed with lard, half-a-drachm to the ounce, are two of the most powerful parasiticides. A saturated solution of sulphurous acid is the remedy I employ, and in this manner: a piece of lint dipped in the solution is closely and constantly applied to the affected part, and this is covered, to prevent evaporation, by oil silk, or by a second piece of lint spread pretty thickly with lard. If the disease be on the trunk or extremities, and general health good, it may be rapidly cured in this manner. But if the disease be seated on the hairy scalp, and the plant has entered the hair follicles, and shot up into the hairs themselves, considerable difficulty is experienced in bringing the parasiticides in contact with the plant, and as a consequence epilation is almost essential for permanent cure. If you will pull out the hairs before the hair-follicle is destroyed no baldness follows. At first sight epilation may strike you as a very painful operation, but if well performed it is not so. Each hair should be grasped with a pair of forceps adapted to the purpose, just where it escapes from its follicle, and pulled sharply in the line of the direction of its insertion into the follicle. As the hairs are much less firmly fixed in their follicles than in health, epilation is so much the more easily effected. If the disease be limited in extent no practical difficulty exists to its cure by epilation; if it occupies the whole or a great part of the scalp, the cure requires much time and great patience. So long as a sporule or a branch of mycelium remains in a hair undestroyed, so long is it certain the disease will return.

Before epilation, *l'huile de cade* is by many applied to the part from which the hairs are to be removed. It is said to diminish the sensibility, and loosen the attachment of the hair to its follicle. The old pitch cap was merely a quick mode of epilation, and not so painful as you would suppose. If herpes circinnatus be present, the extension of the ring of vesicle should be prevented, and on their first appearance the small patches of herpes should be destroyed with nitrate of silver.

Tinea favosa is the disease described by Bateman under the name

of Porrigo lupinosa. The Porrigo favosa of William Bateman and Thompson is a species of impetigo. These excellent observers mistook the yellow crusts of Tinea favosa for dried pustules.—*Med. Times and Gazette, Dec.* 26, 1857, *p.* 649.

90.—*Collodion and Castor Oil as an Artificial Cuticle.*—The mixture has been used of late with success in King's College Hospital, as an application to burns and abrasions, to form a sort of artificial cuticle. It has been used at the suggestion of Dr. Savage, at the Samaritan Hospital, in two cases of vesico-vaginal fistula, now there under the care of Mr. Spencer Wells. In one of these cases there is a recto-vaginal fistula also. In both the excoriation of the labia, perineum, and thighs, from the constant dribbling of urine and the consequent smarting, has been very distressing. Extreme cleanliness, careful drying of the parts, and the use of simple ointment, afforded but little relief. The mixture of one part of collodion to two parts of castor-oil was therefore used and gave the most marked relief. It causes some smarting for a few minutes after its application, but it then forms a smooth elastic coating or varnish, which resists the action of the urine for many hours, and effectually protects the excoriated skin from the irritating fluid.—*Med. Times and Gazette, Jan.* 30, 1858, *p.* 119.

91.—*Pediculi Pubis.*—Dr. HAMAL recommends the following treatment. After having thoroughly washed the parts covered with hair, first with soap and water, and then with clear water, and drying them, pour chloroform on drop by drop, and rub it in. Then cover the parts with a folded handkerchief for half an hour, when another washing with soap and water should be performed in order to detach the debris of the pediculi.—*Gaz. des Hôp.*—*Med. Times and Gazette, Nov.* 7, 1857, *p.* 482.

92.—*Eczema of the Face in Children.*—Dr. BEHREND recommends the following application for the crusts which frequently cover the faces of children :—cod-liver oil, fifteen, and bicarbonate of soda, two parts.—*Bull. de Thérap.*—*Med. Times and Gazette, Nov.* 7, 1857, *p.* 482.

93.—*Treatment of Sycosis.* By WEEDON COOKE, Esq.—Poultice with linseed until the scabs are removed, and then apply constantly a lotion composed of two drachms of manganese with potassa, or permanganate of potash and a pint of water. After the ulcers are healed, it is desirable to apply some red precipitate ointment every night for some weeks.—*Lancet, April* 17, 1858, *p.* 404.

SYPHILITIC DISEASES.

94.—ON THE NATURAL HISTORY OF SYPHILIS.

By Dr. Wm. Henry Porter, Professor of Surgery in the Royal College of Surgeons, Ireland, &c.

[The syphilitic virus having once entered the system, symptoms are produced, almost in a regular order of succession, each order differing from the other, and in each so many and various are the forms of disease which may appear, that the practitioner cannot predicate any symptom of syphilis without a chance of error or mistake.]

In the present state of our knowledge, an accurate diagnosis is altogether unattainable,—perhaps it may ever remain so; but obviously the first step to improvement is in the right understanding of the position we at present occupy, and of the facts and observations that gradually led to it. This, then. will lead to the consideration of two very important questions,—one, as to the circumstances that might cause the products of the poison to be mistaken for other affections, or others for them, embracing the subject of syphiloid diseases, or pseudo-syphilis; the other, whether these products are the results of one poison or of several: it is obvious that this discussion must be conducted with a frequent reference to mercury, for it was with a view to the avoidance of this much-dreaded medicine that the subject was ever investigated.

[John Hunter first made the observation that many sores occurred on the genitals as a consequence of impure connexion, which did not require mercury for their cure, and this has subsequently been confirmed by many others. But no progress has been made in distinguishing between genuine syphilitic ulcers, and those which are innocent and harmless.]

If inoculation is relied on as a test, it has been already shown to be inadequate and imperfect, unless performed on a different and a healthy person. If the hardness of the base of the sore is believed to be characteristic, many sores not so circumstanced are followed by secondary symptoms, and *vice versâ*. If it be tried by the effects of mercury, it has been clearly established that every sore of every kind may be healed without this medicine. Therefore, although I acknowledge that some, nay, that many, or even the majority of these primary sores may not be syphilitic, yet I am ignorant of the mark or character by which one can with certainty be distinguished from the other. That the genuine secondary symptoms are often irregular in appearance, indefinite as to time of development, and uncertain in order and duration, must be admitted also; that is, they so frequently deviate from what we are accustomed to consider as the proper forms and course of the disease, as scarcely to fall within its domain; and, therefore, I cannot with safety pronounce that any suspicious symptom is perfectly innocuous,—it may, notwithstanding any imperfection of

character, be syphilis nevertheless. Thus, doubtful symptoms occasionally, nay, frequently, present themselves, which I know to be difficult, if not impossible, clearly and unmistakably to mark off as syphilitic; but I also know it to be more difficult and infinitely more hazardous to aver that they are not so, and therefore practically I disbelieve in the existence of pseudo-syphilis at all.

As the use of mercury has been again and again resumed, in despite of every obloquy,—nay, in despite of every mischief wrought by the most cruel mismanagement,—so will it in the present instance, if the lues venerea is to be cured. Doubtless, under the modern system much apparent good has been effected, and a vast deal of actual suffering spared, for it may not be denied that we have now nothing like the destruction and misery that were but too prevalent under the hyper-mercurial system,—I mean that which inculcated the unsparing use of the medicine for every sore and in every constitution. But in lieu of these evils it is greatly to be feared that we have secondary symptoms infinitely more prevalent, and especially that one which I have adopted as the only true criterion of the existence of the syphilitic taint,—namely, the production of a putrid or pocky offspring. Which of these evils may occasion the more deplorable consequences to society, it is not my province to inquire: fortunately, the scientific practitioner, who understands the resources of his medicine, is not driven upon either, and both may be avoided by subjecting to a careful, well-regulated, and judicious mercurial treatment, "every symptom so far resembling the genuine disease in appearance and history as to be liable to be mistaken for it.

Having examined, with all the candour and fairness of which I am capable, some of the most important features in the natural history of syphilis, objecting freely to opinions that seemed questionable, no matter by what authority sustained, and endeavouring to support my own views as far as possible by the experience and arguments of others,—I look back with astonishment at the small amount of progress that has been made, and at the mass of obscurity that still hangs over this seemingly devoted subject. I have previously pointed attention to a law which had (as far as I know) hitherto escaped observation, that "the poison of syphilis never returned on itself, or re-contaminated the source from which it was derived;" and the effects of that law in invalidating all the conclusions supposed to be established by inoculation. I then attempted to explain certain results produced by the continuance or persistence of the poison, and its lying dormant within the individual for an unlimited space of time; and how every peculiarity or property of it seems designed to favour its extensive dissemination. I have now followed out the disease as it shows itself in a multitudinous diversity of forms, and have canvassed some of the causes that seem to modify its appearance, its progress, and its termination. I have examined the question of a plurality of poisons as productive of a number of actually different

diseases; pointed out the possible effect of a renovation of the infection in occasionally introducing some black lion, or other fearfully aggravated form of disease, and acknowledged that it sometimes assumes a milder aspect, as if about gradually to wear itself out and disappear. So far I have endeavoured to point out, in the differences between syphilis and other blood diseases, some causes for the exceeding variety in the characters of its symptoms, yet still it is obvious that there is something more; something still remaining behind, more potential in operation than any of these or all; something needed to explain the wonderful difference in the time, and order, and manner of development of the various symptoms, and of which we are profoundly ignorant. Thus it has been seen that syphilis may lurk for years in one individual, never exhibiting a single symptom, never occasioning so much inconvenience as to arouse suspicion, until the mischief is discovered by the unexpected appearance of an infected offspring. Contrast this with the fearfully destructive and rapid progress of the disease in others, sore following sore, and symptom succeeding symptom, until the entire body has become apparently a mass of filth and rottenness. We too frequently see cases in which, from the first appearance of the chancre, the patient has never been one moment free; eruptions, sore throat, iritis, swelled testicle, nodes and caries, rupia and ulcerations following each other with unceasing rapidity until he sinks under his sufferings, and dies one of the most pitiable objects in creation. The latter of these is confessedly a case of syphilis, without any possibility of doubt or error; so is the former, unless it be asserted that the birth of a pocky child is no proof of the existence of the disease in the parent. They are both specimens of the one disease,—the products of one poison,—why does this poison lie dormant and at rest in some, while it occasions the most unremitting and dreadful sufferings in others? In all classes of the community,—in apparently all kinds of constitutions and temperaments,—in persons of every habit and pursuit of life,—this unaccountable diversity is observed. I have already stated that I cannot trace any difference in the original infection, and therefore must refer it to some peculiar state or condition of the individual; I must say that it depends on his constitution. Now, after all, how very little of real or available information is gained by this method of dealing with the subject! We know that the course and progress of the disease may exhibit the greatest possible variety; that, once a chancre has healed, no one can tell whether it will be followed within a week by a sore throat, or an eruption, or whether the patient will remain to all appearance sound and healthy, until (it may be) in years afterwards he infects a wife and child; and we may say that this variety is determined by the constitution, but of the peculiarity of that constitution we are utterly and profoundly ignorant. Still we are, in this respect, not much worse off in dealing with syphilis than with many other affections. Out of fifty patients, the sub-

jects of operation, we know not the few that may be attacked by erysipelas; out of a number wounded we cannot point out the one or two that may subsequently die of tetanus; we can neither prevent the occurrence, nor explain it when it has happened, otherwise than by reference to the constitution. This, then, of which confessedly so little is known, seems to be the great, the prevailing influence in determining the progress of syphilis, and perhaps in forming its characters of severity or mildness. How diffident should it make us in advancing or asserting a positive opinion, and how candid and forbearing in examining the views of others.—*Dub. Quarterly Journal, Nov.* 1857, *p.* 287.

95.—ON THE EVILS RESULTING FROM THE NON-MERCURIAL PLAN OF TREATMENT IN SYPHILIS.

By Dr. Cahill. (Read before the Western Medical and Surgical Society.)

Dr. Cahill commenced by narrating a number of cases in which the constitutional effects of syphilis had been very severe, and has extended, in spite of treatment, through many years, in all of which the early stage of the disease had not been attacked by mercury. After detailing these very carefully, he entered into the history of this plan of treatment, remarking that most of the Irish surgeons who had adopted it have since changed their opinions respecting it. He maintained that the severest and worst forms of constitutional syphilis occur when no mercury whatever has been given for the primary disease, and that the notion that the severe cases of secondary disease are mainly due to the mercury administered is not founded in fact. Mercury, to be of use, must be persevered in for at least six weeks, and to produce its good effects need not be given lavishly or recklessly. If attention be not paid to this fact, no permanent effect is produced, and other forms of the disease, as secondary or tertiary, are apt to follow immediately after. He recommended the use of the bichloride in doses of one-twelfth to a quarter of a grain, together with the inunction of the strong mercurial ointment, until the gums showed that the system was affected by the mercury. The bichloride is borne better than any other form of mercury, and can be continued with safety longer than any other mercurial preparation, not only in these cases, but even scrofulous diseases, in which its use is advisable; hence its peculiar value. Iodide of potassium, given with iodine, is the next remedy to be relied upon, though it is chiefly valuable in secondary and tertiary affections of the periosteum. In tertiary symptoms, the iodide is our sheet-anchor, and mercury should never be given in such cases to the extent of producing its specific effects; should a mercurial be required, the hyd. c. cretâ is to be recommended in conjunction with the iodide of potassium. Iron, arsenic, and mineral acids, under certain circumstances, are useful, especially after mercury has been fairly tried;

these, with the ordinary means of restoring health, as good food, pure air, and rest, will generally promote a cure. He then alluded to the difficulty of distinguishing primary chancre, and the means employed by inoculation, and the peculiar hardness of the true Hunterian chancre, and to the chance there was of a chancre in the urethra being overlooked, and to other sources of error as to the curability of syphilis without mercury. He concluded with the following observations:—

1st. That the severest and most prolonged forms of the disease have arisen where no mercury has been given for the primary or early secondary affection.

2ndly. That as no symptoms identical with those of constitutional syphilis are produced by mercury, the notion that mercury is a cause of constitutional syphilis is founded in error.

3rdly. That the administration of mercury may be so regulated as to preclude any of its severe effects; and supposing any are produced, it is manifest that they would be less severe than those caused by constitutional syphilis.

4thly. That the constitutional effects of mercury should be avoided in tertiary syphilis.

5thly. That the supposed successful treatment of syphilis without mercury is founded on erroneous diagnosis, or the cases have occurred in individuals already protected, or the subjects have been of that class who seem to enjoy immunity from the worst part of the complaint.—*Lancet, Dec.* 5, 1857, *p.* 581.

DISEASES OF THE EYE AND EAR.

96.—DIVISION OF THE TEAR PUNCTUM AND ITS CANAL.

For the performance of this little operation Mr. Solomon has laid aside the knife and director, and substituted a pair of Maunoir's scissors, that have narrow blades and sharp points. The advantages of this change are,—he finds great facility and rapidity of execution, a matter of moment in nervous patients; the slit is always perpendicular; it never re-unites, and the sides of the canal remain well everted. The greatest width of the blades of the scissors he makes use of, is one-sixth of an inch, their length from rivet to point half an inch. Having first explored the canal with a probe to ascertain if it is strictured, and what its direction may be relatively to the margin of the lid and the caruncle, the operator, bearing in mind the anatomical arrangement of the parts, enters the punctum, while the lid is on the stretch, with the point of the lower blade of the scissors, and then slightly depressing the handle, slides the blade along the canal as far as the caruncle, where he pushes the point through the conjunctiva, and cuts out. If the punctum is constricted a common pin is used as a dilator before the introduction

of the scissors. In the preceding description the lower canal is supposed to be the one selected for the treatment, though this method is also applicable to the upper.—*Medical Times and Gazette, Feb.* 20, 1858, *p.* 196.

97.—*Ointments for Tinea Tarsi.*—Almost the sole use for ointments in ophthalmic practice is against tinea of the lids. For the treatment of this most troublesome disease, several formulæ are contained in the Moorfields Pharmacopœia, most of them having some form of mercurial as their active ingredient. We have the unguent. hydrarg. nitr. dil., the strength of which is half a drachm of the nitrate of mercury ointment to seven drachms of lard; the unguent. hydrarg. mitius, which is a drachm of the nitrate of mercury ointment to nine of lard; the ung. hydrarg. nitrico-oxyd. dil., which consists of a drachm and a half of the ointment of the nitric oxide to six and a half of lard. Of those not containing mercury the compound zinc ointment is the only one; its formula is equal parts of the zinc and compound lead ointments; it is, we believe, very rarely used. The dilute nitrate of mercury ointment is the one which enjoys by far the largest amount of confidence.—*Medical Times and Gazette, Jan.* 9, 1858, *p.* 35.

98.—THE OPERATION EMPLOYED IN CASES OF STRABISMUS.

The operation for internal squint as performed at the Central London Ophthalmic Hospital, by Mr. Walton, differs in the details from that done at most other institutions, and is executed in the following manner:—

The conjunctiva and the sub-conjunctival tissue are snipped through vertically, just over the lower part of the internal rectus, at a distance of a line from the cornea. A blunt hook, slightly curved, is introduced, the muscle secured and brought to the surface, more or less covered by the conjunctiva, which is pushed aside as far as it will go, whilst the point of the hook is manœuvred and brought down as near as possible to the upper edge of the wound, in order that no more of the mucous membrane shall be cut than can be avoided; while he divides the muscle near to its insertion with a pair of blunt-pointed scissors. A search is then made to detect any muscular fibres, or adhesions in the form of condensed areolar tissue, that may have escaped severing. Therefore the extent to which the conjunctiva is incised never exceeds more than the breadth of the muscle, and is sometimes less. One or two sutures are then put in with a needle blunted at the edges, that it might not cut itself out, at the very margin of the wound, to avoid tension, and to secure accurate adaptation. These often ulcerate out within three days; if they remain

longer, they are removed. They do not irritate in the least degree, for they soon get sopped with mucus and lie flat; nor is the patient aware of their presence.

Now for Mr. Walton's explanation of this:—The first and chief aim of the operation, and for which the patient bargains, is to set the eye straight. The next is to prevent any sinister result, and to leave as little mark as can be of what has been done. By no method which he has practised or seen executed, in which the muscle is to be seized and divided beneath the conjunctiva, is there universal certainty of accomplishing this desirable end. In children, whenever the eye is deep set, and especially in the latter condition when the conjunctiva is thrown into folds, and the subjacent tissue thickened, and when the muscle is large and much contracted, he declares that there is great uncertainty.

Not very unfrequently, when operating in the manner advocated by him, some of the muscular fibres are not snipped, and to discover which, diligent search, he says, may be needed. Then the sub-conjunctival tissue, when thickened, forms a complication sometimes troublesome to overcome. It is liable to be taken up instead of the muscle. If these difficulties, or obstacles, present themselves under these circumstances, must they not be greater, he argues, when the operator cannot see what he is doing. It was Guérin who proposed the sub-conjunctival plan. (See Walton's work on "The Eye," p. 294.) It consists in leaving intact the conjunctiva just over the muscle, and cutting through the membrane, either below or above the level of the muscle, and using the instrument or instruments, required for the completion of the operation beneath it. Guérin's object was to prevent the dropping of the caruncle, a defect so conspicuous when a free dissection is made in operating. Sometimes this body will, under these circumstances, disappear altogether. Mr. Walton has long pointed out that this defect may be somewhat overcome by operating close to the cornea, making a very small incision, and not interfering with the cellular sheath of the eyeball, which is pierced by the recti muscles, the tunica vaginalis oculi of Tenon. An eye so treated may not leave a trace of the operation; but when the wound is left to itself, especially if it gape and be long in healing, more or less displacement of the caruncle generally ensues. This contingency is removed by the use of sutures. With them there is a rapidity of repair formerly thought impossible in the case of mucous membranes. Nearly always there is union by the first intention, and sometimes by adhesion. Fungous growths, so common without them, never appear. In fine, by the limited operation, and the use of sutures, are secured a certainty of execution, and the greatest safeguard we can employ against eversion and prominence of the eyeball, and the preservation, as far as it is possible, of the natural outline of the surface of the eye. —*Lancet, Jan.* 16, 1858, *p.* 63.

99.—EPITHELIAL CANCER NEAR THE RIGHT EYE REMOVED BY CAUSTIC.

By Henry Thompson, Esq., Marylebone Infirmary.

[In this case the tumour was so close to the eye, that it appeared that the knife could not be used A strong escharotic paste, consisting of strong sulphuric acid and powdered exsiccated sulphate of zinc, was employed.]

The first application of the caustic paste was on the 13th of July last; the next, on the 20th. It was then continued (for six times in all) at about seven or ten days' intervals, the last being made about the 3rd or 4th of September. In order to limit carefully the action of the caustic, which formed a paste of the consistence and appearance of mortar, the parts around were first covered with a thick layer of stiff cerate. In this manner the application of the active agent could be managed with precision and nicety, and thus the margins of the eyelids, in this case, were protected :—

E. C——, aged 70; a year and a half ago she noticed what she thought to be a small wart under her right eye. It slowly increased in size; but during the last three months had increased rapidly, and become very painful. She came under Mr. Thompson's care in the middle of July last. There was then a tumour, evidently an epithelial growth, the size of a walnut, projecting beneath the external canthus of the right eye, but so closely applied to the edge of the lid that it appeared impossible to remove it by the knife without removing a portion of the lid also, and endangering the eye. Accordingly, he determined to remove it by caustic, and used the following :—A compound of the strongest sulphuric acid of commerce and exsiccated sulphate of zinc, in powder, mixed to the consistency of a thick paste. The exsiccated sulphate of zinc is the preparation used by Dr. Simpson, of Edinburgh; and has proved in the hands of many surgeons a very powerful caustic when made into a paste with glycerine. It has, however, no power to act on sound skin, which requires previously to be abraded by means of a blister. The strong sulphuric acid, on the other hand, has been employed by Velpeau and others, when made into a paste with charcoal, which is inert, and is added merely to give consistency to the mixture. It occurred to Mr. Thompson to employ the two active agents in combination—viz., to thicken the sulphuric acid with the exsiccated zinc, and thus obtain a more powerful compound, and at the same time one which required no preliminary blistering.

In the case of this woman, a thin layer of the paste had been applied six times, with the result of most completely removing the diseased mass. A month has now elapsed since the resulting wound has cicatrized, and there is no appearance whatever of disease about the part. When using it, the surrounding parts were protected with a thick layer of cerate, which prevented the possibility of its action ex-

tending unduly. Afterwards, incisions were, on two occasions, made into the eschar to admit of the introduction of the paste beneath it. The pain during the first two or three applications was inconsiderable; but during the two latter ones it was severe. The eye was at no time implicated. Ten days subsequently to the last employment of the caustic, she had an attack of erysipelas. The woman's appearance, in all respects, exhibits that of a complete removal of the disease.

Mr. Thompson believes that the employment of caustics for the removal of cancerous growths could only be justified in exceptional cases, but that this case was, from the circumstances related, one to which that mode of treatment was especially adapted.—*Lancet, Nov.* 14, 1857, *p.* 497.

100.—*Atropine Drops.*—The formula for the atropine drops in use at the Royal Ophthalmic Hospital is two grains of the sulphate of atropine to an ounce of distilled water. This solution is mainly employed for dilating the pupil, in order to allow of better examination of the state of the eye, and also prior to needle operations. At this hospital the pupil is never dilated before the performance of extractions. Dilatation of the pupil to its utmost possible extent is desirable before inspection with the ophthalmoscope. Attention to this hint will prevent disappointment, and the loss of much time to novices with the instrument. In the course of iritis, when it is deemed desirable to employ belladonna, the extract itself rubbed up with warm water, and used as a fomentation, is preferable to atropine. It should be used as warm as can be borne.—*Med. Times and Gazette, Jan* 2, 1858, *p.* 12.

101.—*On the Fomentation of Artificial Pupil by Galvano-Cauterization.* By M. Tavignot.—M. Tavignot, after enumerating various circumstances which may render the results of the ordinary operation for artificial pupil unsatisfactory, states that he has been for some time considering the applicability of the galvanic cautery for this operation, and has succeeded in employing it. Its chief advantages are, that the new pupil may by it be established instantly, and without hemorrhage, and that its dimensions and shape can be exactly determined. Being a more simple manœuvre than the tearing through the iris, it is less likely to be followed by inflammatory consequences. Moreover, the aperture can as easily be made in the cases in which false membranes line the posterior surface of the iris, or obstruct its central portion. Thus far he only deems this procedure applicable to subjects who have already undergone the operation for cataract; as in the case of the lens being present its opacity would be induced during the application of the caustic. M. Tavignot prefers Bunsen's pile; and having made an incision at the external circumference of

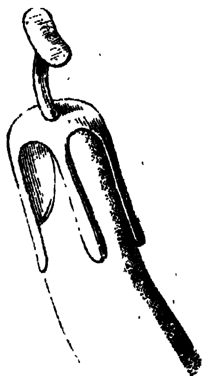
the cornea, he passes in the caustic-rod, directing its platinum ring to the point he wishes to influence, taking care not to cauterize the posterior surface of the cornea, nor the edges of the wound.—*Moniteur des Hopitaux*, 1857, No. 119.—*Medical Times and Gazette, Jan.* 16, 1858, *p.* 68.

102.—THE CATARACTOUS EYE COMPRESSOR: A NEW INSTRUMENT FOR FACILITATING THE EXTRACTION OF CATARACT.

By JAMES VOSE SOLOMON, Esq., Surgeon to the Birmingham and Midland Counties Eye Infirmary.

In the removal of hard cataract from the axis of vision by extraction, after the section of the upper half of the cornea has been completed (in the right eye), and the capsule of the lens has been sufficiently opened, the operator, in order to dislocate the cataract through the pupil, raises the upper lid with the forefinger of the left hand, and with the "curette" in his right, makes pressure with the spoon end of that instrument upon the globe, at a point about midway between the lower margin of the cornea and the insertion of the inferior rectus muscle.

It will, however, sometimes happen, notwithstanding the corneal and capsular incisions have been properly executed, that the cataract does not come forward, but slips behind the iris, or perhaps sinks more or less deeply into the vitreous humour. Under these circumstances it is usual, and a very good practice, to get an assistant to harpoon the lens with a small and sharp hook, and then gently withdraw the cataract through the pupil and the corneal incision, care being taken not to evert the flap to such an extent as shall favour an escape of the vitreous. This manipulation to be safely performed requires that it shall be executed by the steady and delicate hand of one who has been practically instructed in the operation under consideration. But such a one is not always at hand. I have therefore been led to devise and make use of the instrument here delineated. It consists of a cup of thin metal, with four elastic ribs attached to it, which fits on the end of the second finger; to the centre of the cup is rivetted a curved stem, something less than half an inch in length; this stem terminates in a transverse bar, which is concaved, and set on at such an angle as will render it easy of adaptation to the globe of the eye.



Either silver or steel may be used for the cup and ribs. Each rib should be hollowed, so as to give it strength and elasticity.

It will be obvious to those accustomed to operate for cataract, that the upper lid can be elevated and fixed with the index finger, and pressure made upon the eye-ball by the second finger of the same hand, arched in front of the eye, and having attached to it "the compressor." From the trials I have made with it, I believe that in the operation of extraction the surgeon will gain by its use an equivalent to a third hand. It is less painful to the patient than Daviel's spoon. The exact amount of pressure exerted is accurately appreciated through the tactile sensibility of the end of the finger. Moreover, by placing the stem of the hook held in the right hand just behind the upper part of the incision, a useful degree of counter-pressure can be made; and should the cataract not then come forward, or should any untoward accident threaten, the hook can be used to seize the cataract at the precise moment, and in the exact mode that the operator may deem advisable. In fact, one mind will direct the whole of those manipulations, which demand skill and knowledge for their perfect execution.—*Med. Times and Gazette, Nov.* 7, 1857, *p.* 471.

103.—REPORT OF THE LIVERPOOL EYE AND EAR INFIRMARY ON CATARACT.

By Dr. J. Birkbeck Nevins, Assistant-Surgeon.

[In the following paper special attention is directed not only as to the immediate result of different methods of operation, but also as to the remote consequences.]

In looking at the reports of the Metropolitan Institutions, we find cases of cataract operated upon by extraction are reckoned by the hundred, whilst that is a mode of operating scarcely ever practised in this infirmary, the operation by displacement or solution being almost invariably adopted. Now it is acknowledged that the immediate risks in extraction are far greater than in the needle operation; but it is said that in the hands of an experienced man the results are so much more satisfactory as to place it decidedly above its more ancient rival; and I have heard of an experienced oculist in a very large ophthalmic institution, who has so uniformly adopted, and seen others adopt this operation, that he has never seen that of displacement practised in a single case of hard cataract. By the advocates for extraction it is said, that the presence of the lens in the eye after displacement produces certain injurious consequences which do not manifest themselves for a long period,—it may be years,—after the patient is dismissed from the surgeon's care, and that subsequent amaurosis results from the irritation of the retina produced by the presence of a foreign body, such as a displaced lens. To this point, therefore, I have directed special attention; and I trust it is not presumptuous to hope, that the form in which the results of the practice

of this Eye Infirmary are here detailed, may stimulate some of those who have equal experience in extraction cases, to publish their results in a similar form, that the oculist and the profession generally may be able to judge which is upon the whole the most satisfactory in its results,—a point which I believe has never yet been submitted to so rigorous a test as I here propose.

To state simply that a patient operated on for cataract has been "cured," or "relieved," or "has derived no benefit," appears to me to be totally worthless; for the *cataract* may be cured, that is to say, it may have disappeared, and the pupil remain clear, and the eye free from inflammation or apparent disease, but the patient may nevertheless be totally blind from resulting amaurosis, and his own report of himself may be, that he is worse than before the operation, whilst it may be said,—and in one sense with truth,—that the cataract has been cured. I have therefore endeavoured to employ a test of practical value, instead of a term which is open to such misconception, and in relating the results of the cases operated on by the needle, I have divided them into classes, according to their visual powers when discharged, without reference to the presence or absence of any remains of the lens or its capsule. Thus the first class consists of patients who "can see to read," in which none have been included who have not recovered their sight so perfectly, as to be able not only to read, but to pursue their ordinary avocations with ease. The next class are such as describe themselves by saying, "they can see everything," and is confined to those who never could read, and therefore cannot be submitted to that test. The third class contains those who "can discern features," that is, patients who can recognise every one they see, but cannot decypher type, or see to sew or do fine work, but can follow household employments, or labouring occupations. These may all be said to have regained good useful vision. The next class consists of those who "can see very imperfectly," which means that they can just see their way, so as to avoid running against obstacles. The fifth class contains those who have derived "no advantage" from the operation; and the sixth and last consists of those who are "worse than before it." With reference to these last two classes, some important points have to be taken into consideration, especially in cases of traumatic cataract.

It not unfrequently happens that amaurosis is associated with the cataract, and if the patient is blind from the first disease, the removal of the second will not restore vision. Such a patient will therefore have derived no benefit from the operation, though it may have been perfectly right to give him the chance of recovering a little sight. In many cases it is difficult even for an experienced oculist to be certain whether there is amaurosis before the cataract is removed or not, and he will therefore give the patient the benefit of the doubt; and this is especially the case in traumatic cataract. In estimating, therefore, the result of the operation, I have given the total number of those

who have received no benefit, in order that the report may be complete; and I have also given the return, deducting those who were entered in the report at the time of their admission as being amaurotic, or having the eye soft, or otherwise diseased, in order that the result of the operation upon healthy cataractic eyes may be fairly estimated.

A similar kind of qualification must be made in the cases which have been worse for the operation; but in these another disturbing circumstance comes into operation. Some of the patients recorded as "worse" did not leave the hospital worse, but better; but in consequence of using the eye too soon, or of exposure to cold, they have returned in a few weeks with an inflammatory condition of the organ, which, in some cases, has ended in total loss of vision. I have not however deducted these from the list, because, although in one sense it was not the operation which made the patient worse, yet, in another, this deterioration of the eye was a legitimate consequence of it; since the exposure would probably not have produced such destructive results had not the eye been previously operated on. I think, therefore, that in considering the probable result of the operation, we ought to make allowance for a certain amount of risk on this score, and accept it as a natural result if it does occur, instead of rejecting it, and saying that the operation has been successful, and the subsequent injury was the patient's own fault.

Such is the mode in which I have estimated our operations; and if the advocates for extraction will lay before the profession the results of their cases in a similar manner, it will be in a position to judge more impartially and intelligently between the two methods than I believe it can do at present.

Results of the Operations.—It is necessary to state in this place, that these results only refer to cases of needle operation, whether it has been performed for the purpose of displacing a lens, or of cutting it up in order to obtain solution. The results of extraction cases will be noticed further on. One hundred and thirty-four eyes have been operated upon with the needle during the last two years, under my observation, and they have yielded the following results:—

53	patients, or	39½	per cent.,	"could see to read."
20	"	14½	"	"could see everything."
21	"	15½	"	"could distinguish features."
94		69½		

That is to say, above two-thirds of the cases recovered good useful vision, and in above half it was sufficiently perfect for the most minute purposes of business or daily life. In addition to these, one in twelve gained imperfect vision; *i. e.*, they could just see their way about the house or the streets: and a single patient is recorded as "improved," but I have no more accurate account than this.

We now turn to the unfavourable cases, which bear a small proportion to the successful ones. Twenty-one patients, or 15½ per cent., had "no improvement;" but of these, 14 were entered on admission, as having amaurosis, or some disease of the globe. It was not, therefore, to be expected that they would be improved; and when they are deducted, we have a remainder of 7 patients, or 5 per cent., who derived no benefit, though they were no worse for the operation, and they had had the chance given them of obtaining some degree of vision.

The list now to be given, contains those patients who were worse at an interval of some weeks or months after the operation than before it, and of these I have records of 9; of which, 3 were entered as having amaurosis, or softening, &c., previous to the operation; leaving 6 cases, or 4½ per cent., in which a favourable result might have been hoped for, but in which loss, and not benefit, was ultimately experienced.

The general results, then, of the needle operations, as detailed in this report, have been, that 70 per cent. of the cases have recovered useful or perfect sight, and 9 per cent. are able to see their way; whilst 9 per cent., who had a prospect of recovery, either derived no benefit, or were worse than before. In addition to these, 12 per cent. were operated upon in order to give them a chance, though with little prospect of benefit to begin with, and the result corresponded with the anticipation.

These results must be considered as highly satisfactory; for they show that where no fatal disease of the eyes can be recognised beforehand, in addition to the cataract, not one patient in ten fails to regain either perfect vision, or a degree of improvement from the operation; and of those who do not benefit by it, above half are no worse for it.

It also shows that not one patient in twenty who had a prospect of recovery is a loser by the operation, and that many even of those who suffer ultimate loss, might have escaped it, if they had not exercised their newly-acquired powers too soon, or exposed themselves imprudently to injurious influences.

Number of Operations Requisite.—One great objection to the needle operation, and (as I think this report will prove), the only really valid one, is the length of time requisite for cure, and the number of operations occasionally necessary. In the operation by extraction, the patient speedily knows the best or the worst that he has to look for; whilst in the needle operation the treatment may extend over months, and the necessity of repeated operations discourages the patient, and makes a demand upon his time which, in the case of an operative, is often of serious consequence. If, however, it should prove, that the ultimate result of the one is decidedly more favourable than the other, there are few patients who would not prefer the suspen[illegible] half year, with a high probability of ultimate useful vision, to th[illegible]ty that at the end of a fortnight they will be either cured or blind for

life. The following table shows the number of operations in a hundred cases, of which I have kept a detailed account:—

In 37	cases	1	operation	sufficed.
44	,,	2	,,	were requisite.
14	,,	3	,,	,,
4	,,	4	,,	,,
1	,,	5	,,	,,

Five is the greatest number I have yet known to be required.

It will therefore be desirable to tell a patient beforehand, that only about one case in three is cured by a single operation, and that he will be almost certain to require two; but the chances are in his favour that a third may not be necessary.

Length of Time required for Accomplishing the Solution of a Hard Cataract.—Another of the objections entertained to the operation for displacement of a hard cataract, is based upon the assumption that the lens will remain in the eye as a foreign body, and produce the injurious consequences likely to result from the presence of a foreign substance in so delicate an organ. It therefore becomes a matter not merely of curiosity, but of practical importance, to ascertain whether the lens does so remain, and produce the consequences anticipated; and also, how long it will probably be before it disappears, if it should ultimately disappear at all. The following table and remarks show the rate of solution in thirty-three cases of hard cataract which were displaced by the needle.

In 1	case,	the lens had gone in 11 days.
3	,,	,, ,, 16 to 19 days.
1	,,	"lens almost entirely gone" in 17 days.
5	,,	lens had gone in 2 months.
1	,,	"lens nearly gone" in two months.
3	,,	lens had gone in 3 months.
2	,,	,, ,, 5 ,,
1	,,	,, ,, 6 ,,
6	,,	,, ,, 12 to 18 months.
23		

In three other cases, raising the numbers to 26, the lens was much reduced in size, but had not entirely disappeared at the end of three months, though there was every reason to expect that it would do so shortly. In three other cases, portions of capsule were still present, not interfering with vision; and in four the lens was still visible to a greater or less extent, but very rarely interfering with the sight, after periods varying from ten months to seven years. It appears, therefore, [illegible] four-fifths of the cases of hard cataract the lens is entirely [illegible] within eighteen months, and in above half solution is complete within six months; whilst in several cases the lens had

entirely disappeared within three weeks. And even in several cases in which solution was never perfected, the remains of the lens or capsule did not practically interfere with useful vision.

[Mackenzie says, "Displacement is only to be thought of when some insuperable objections exist to division and extraction,—chronic inflammation within the eye, dissolution of the hyaloid membrane, and amaurosis, and, I believe, the almost invariable results of a cataract of any considerable bulk continuing undissolved in the situation assigned to it by displacement." The author, speaking from experience, believes that the fear above expressed is groundless, for though it is true that an undissolved lens does operate prejudicially, yet it is so rarely that a lens does remain undissolved that in practice the objection falls to the ground.]

Results of Extraction.—For these I am chiefly indebted to Mackenzie (4th edit., p. 748,) as our experience of the operation derived from the infirmary is so limited, that its advocates might very properly decline to accept the inferences drawn from so small a number of cases. So far as I know, during the last ten years or more, the operation has only been performed for idiopatic cataract in two instances in the Infirmary; in the first of which the eye was totally lost, after many weeks' suffering; in the second, the operation was successful, and the patient left the hospital able to do everything except read, for which she was not tested, as being too early. I have records of 18 operations by extraction, 12 of which resulted in total loss of vision, and 6 in good sight, *i. e.*, all but one could see to read. These operations were performed by various persons, and although some of them are dead, and I have no means of ascertaining their surgical reputation whilst alive, the majority have been performed by oculists of wide and deserved celebrity, both metropolitan and provincial. When these are added to Mackenzie's list, the results are as follow:—

	Perfect Sight.	Indifferent.	Failures.
La Faye	2	2	2
Poyet	2	2	3
Roux	97	10	72
List as above	6	0	12
	107	14	89

When these are reduced to per centages, to make them correspond with the results of displacement, we have—

Successful.	Indifferent.	Failures.
51 per cent.	6½ per cent.	42½ per cent.

In addition to the above, Mr. Sharp operated upon 19 cases, "in above half of which he had what he thought 'tolerable success.'" And Dr. Tartra operated in 71 cases by extraction; but as the results of 37 were "either unknown or more or less unfavourable," in "addi-

tion to "6 indifferent results and 8 total failures," making 45 unknown or unfavourable results out of 70, or rather more than 64 per cent., the return is too imperfect to be worth anything for comparison. Dr. Tartra, however, did not confine his operations to extraction, but his results after displacement are almost equally uncertain with those after extraction. What he does give definitely is, that 27 per cent. of the extractions recovered perfectly, and 56 per cent. of the displacements; or two to one in favour of the latter operation, and that 9 per cent. of the extractions, and 12 per cent. of the displacements, were total failures; the extractions, in this respect, having the advantage.

In bringing our definite results then into a collected form, we find the following materials for making a comparison:—

	Successful.	Indifferent.	Failures.
EXTRACTION......	51 per cent.	6½	42½
	57½ (successful and indifferent together)		
DISPLACEMENT...	69½ per cent.	9	9½ & 12 known to be amaurotic before operation.
	78½ (successful and indifferent together)		21½

Such, then, is the present state of our definite materials for forming an opinion upon the respective merits of the two kinds of operation, as tested by their results; and it will be for those who are interested in Ophthalmic Surgery to consider whether extraction, rather than displacement, is upon the whole the best mode of removing a hard cataract.—*Liverpool Medico-Chirurgical Journal, Jan.* 1858, *p.* 98.

104.—EXTRACTION OF OPAQUE CAPSULE AFTER THE OPERATION FOR CATARACT.

[This case occurred at the Central London Ophthalmic Hospital, under the care of Mr. HAYNES WALTON.]

A youth, who had undergone operations for cataract, had one of the pupils obscured by opaque capsule, which was disposed in a manner difficult to be got rid of, according to the general rule of practice. It lay as a continuous membrane over the vitreous humour. Very often it is impossible to depress capsule so circumstanced, as it will [illegible] as often as pushed down. Moreover, it will spring back to the former site even when a considerable portion of the circumferential attachment has been torn through. Neither was it most favourable for being rent with two needles. The measure most suitable, according to Mr. Walton, and that at the same time the least injurious to the eye, was extraction. The incision in the cornea must always be proportionate to the body to be removed; it

must be ample, but not longer than is required. Mr. Walton suspected that the sharp canula forceps might be used, and they were employed with effect. This elegant and scientific little instrument of French invention, is figured in Mr. Walton's work on the Eye. The blades are brought into play by a canula, which encloses them, shutting when the canula is pushed forwards, and opening when it is withdrawn. The degree of their expansion may be graduated by allowing more or less length of blades for the canula to work over, an alteration which is provided for by the screw at the shoulder of the instrument that secures the stem of the blades. The larger and sharper blade is perforated about the centre to receive the hooked end of the other, and the surfaces, where the two come in contact, are cross-cut like common forceps. The sharp blade should be sufficiently keen to enter the cornea readily, and the lesser should have its edges so levelled that there shall not be any projecting angles, or any obtuseness to impede penetration. The great advantage of this beautiful appliance is, that it completes by itself all that is required, the aid of any other instrument being dispensed with. If properly used, the aqueous humour may generally be retained till the capsule is withdrawn, a great desideratum.

When the capsule is in too large a mass to be extracted after this method, Mr. Walton excises the cornea, with an iris knife, and often employs the blunt canula forceps—more frequently, perhaps, than any other description of forceps.—*Lancet, Dec.* 5, 1857, *p.* 576.

105.—ON THE SYMPTOMS, MORBID ANATOMY, AND SURGICAL TREATMENT OF GLAUCOMA.

By J. W. HULKE, Esq., Assistant Surgeon to King's College Hospital, and Medical Tutor in King's College, London.

The ophthalmoscopic signs of this disease are not generally known. They are: a dilated state of the retinal veins, often tortuous and turgid with blood; small ecchymoses scattered over the surface of the retina; occasionally small blood-clots in the vitreous humour; pulsation in the arteria centralis retinæ; and an excavated state of the optic papilla. These last two signs were, the author believes, first noticed by Graefe, who insists upon their being pathognomonic of this disease.

Morbid Anatomy of Glaucoma.—The small blood spots which are sprinkled over the inner surface of the retina are small spots of capillary hemorrhage. This condition was first recognized in glaucoma, by actual dissection, by Mr. Bowman. The bleeding proceeds from the capillaries in the inner layers of the retina, and the blood either spreads laterally amongst the elementary structures of the retina, or, bursting through the hyaloid membrane, it forms small clots in the vitreous humour. The retinal capillaries are irregularly dilated and

studded with small fusiform and globular enlargements—little aneurismal pouches. These dilatations do not occur on the large vessels. The pouches and the vessels communicating with them are usually crammed full with blood corpuscles. In the hemorrhagic spots the retinal tissues are infiltrated with blood discs, which have escaped by the bursting of some of these little anurismal pouches. Excepting the changes described above, the retinal capillaries have a healthy appearance, and do not present traces of fatty or atheromatous degeneration. The coats of the arteries are hypertrophied. The *vitreous humour* sometimes has a yellow tinge, which is derived from the colouring matter of the effused blood. It often contains blood discs and delicate fibrinous webs; and sometimes also small blood clots, which can be clearly seen with the unaided eye. The vitreous humour has a very remarkable degree of consistence, and does not quickly flow off when the eyeball is cut across. Viewed by transmitted light, the glaucomatous lens has a yellow tint like the vitreous humour, and which is probably acquired from the same source—viz., the colouring matter of the effused blood. The relations of the lens and the vitreous humour favour this supposition. In none of the dissections were any morbid changes found in the choroid, unless when staphylomata were present. Corresponding with the staphylomata, the choroid, retina, and sclerotica preserve their natural relations to one another, and are not separated by any effusions. The choroidal pigment is irregularly distributed; the tissues seem opened out. The subsequent changes in the retina and choroid, in the advanced stages of the disease, have an atrophic character. The dilated retinal capillaries and their contents have been found dark and granular, in a state of fatty degeneration, and the contiguous parts of the retina participate in these changes. The symptoms, the ophthalmoscopic signs, and the structural changes which take place early in the disease, all point to a state of great vascular excitement in the retina, and a greatly increased internal pressure upon the walls of the globe. It is this pressure which causes the blindness in the early stage of the disease, and the fixed dilated pupil, for when the pressure is relieved by operation, sight and mobility of the pupil return.

[Mercury and the abstraction of blood are the remedies heretofore chiefly employed in this disease; but these have failed even in the hands of their most sanguine advocates, and glaucoma remained, the most intractable and hopeless of eye diseases. Dr. A. Von Graefe proposes to cure this disease by excising a portion of the iris.]

Dr. A. von Graefe has stated his views, and described his treatment of this disease in a Memoir addressed, in July or August last, to the Institute of France, and in an elaborate article in the second part of the third volume of the "Archiv für Ophthalmalogie," edited by Professors Arlt, Donders, and himself, and published at Berlin, October, 1857. It is very interesting to notice how he was brought, step by

step, to the operation which finally gave him such success. How to lessen the excessive intra-ocular pressure was the leading idea which guided him; for he was convinced by the visible pulsation in the central artery of the retina, by the cupped state of the entrance of the optic nerve (both which he first described in this disease, of which he considers them pathognomonic), by the hardness of the eye-ball, and by the other symptoms, that the tension of the globe was greatly increased, and he rightly ascribed the blindness which takes place so early in the acute form of the disease to the effects of pressure upon the retina and entrance of the optic nerve, rather than to any structural changes already taking place in these parts. How to diminish this augmented pressure, and so to restore the natural tension of the eyeball, was the problem he undertook to solve.

The whole class of evacuants, antiphlogistics, diaphoretics, diuretics, laxatives, and a mercurial course pushed even to salivation, had failed in his hands, just as had always happened to others; and this directed his attention to local measures. He first tried mydriatics, which he had found useful in the ciliary neurosis which attends corneitis and iritis: but here they failed him, probably, as he says, because little or none of the atropine he dropped in was absorbed, in consequence of the internal distension. Then he tried the well-known operation of paracentesis of the anterior chamber, and with some abatement of the symptoms, but the melioration was only temporary; and even in cases where he had at intervals repeated the operation, the results obtained were not permanent. His own observations had already made him acquainted with the influence of the formation of an artificial pupil in certain cases of partial sclerotic and corneal staphyloma. The practice has been to remove the staphyloma, and then, if possible, to make an artificial pupil if the natural one was obstructed, but Dr. A. von Graefe has reversed this order; he had first made the artificial pupil, and then had found that the staphylomata sank to the common level. (A. F. O. Bd. iii. Abth. ii. 491.) Bearing this in mind, he experimented on animals, excising portions of the iris, and found the operation was followed by a softer state of the eyeball. Supported by these facts and conjectures, he thought himself justified in performing iridectomy in glaucoma. He performed his first operation in June, 1856. The operation he recommends consists in the excision of a large portion (even a fifth or fourth) of the iris in its entire breadth from the edge of the pupil to the ciliary margin. Mr. Bowman does not (at least in chronic cases) excise more than an eighth of an inch, but, whatever the extent, he makes an incision of corresponding length at the edge of the sclerotic into the extreme rim of the anterior chamber, with a common extraction knife, great care being taken not to wound the iris or lens. So far the operation resembles that for extraction, only a very small flap is raised at the junction of the sclerotic and cornea, but rather in the sclerotica.

Dr. A. von Graefe recommends that the portion of iris to be

excised should be larger in proportion to the intensity of the symptoms and distension of the globe. Mr. Bowman has observed that much care is necessary in making the incisions; the small size of the anterior chamber consequent on the advance of the lens demands great caution in directing the point of the knife; and if the chamber is opened by a simple puncture, which is subsequently enlarged by a sawing movement, the difficulties may be increased by the immediate escape of the aqueous humour, and the knife becoming entangled in the iris, or wounding the lens before the incision has been enlarged to the desired extent. The knife, therefore, once entered, should be pushed steadily but slowly onwards, so as to cut its way out ere the escape of the aqueous humour allows the iris to fall before its point or edge. When the incision is complete, the iris bulges a little through the margins of the wound; it should now be gently drawn out with forceps, and be cut off with scissors at each angle of the wound. The result is that the pupil is at once enlarged up to the incision, which forms, as it were, the base of a *coloboma iridis*, and the edge of the lens with its suspensory ligament passing in front of the vitreous humour to the ciliary processes is exposed to view; a little blood often trickles into the chamber, and may be either removed through the incision, or allowed to remain and be absorbed.

Dr. A. von Graefe usually makes the incision at the inner side of the cornea; he thinks the situation of little importance, but says it may, if desirable for appearance sake, be made above. This last situation was chosen, and is preferred by Mr. Bowman, because, while he considers it a matter of indifference as far as regards the relief of tensions which part is excised, he believes that the cover thus given by the upper lid to the margin of the lens, which has been exposed by the removal of the iris, contributes to the perfection of vision, the central part only of the lens being usually uncovered.

The operation was introduced into England by Mr. Bowman, and first performed by him in the Moorfields Ophthalmic Hospital, May 1st, 1857.

Subsequently it was taken up by Mr. Critchett, and by other members of the hospital staff. During the last six months it has been subjected to extensive trial, and I may safely affirm, has succeeded beyond expectation. Mr. Critchett believing that a less extensive excision of the iris is sufficient has modified the operation; he makes a small incision within the margin of the cornea with a broad cutting needle, draws out a portion of the iris with a blunt hook, and leaves it in the wound; or if it protrude much, he removes a portion, and leaves the remainder in the wound. Entangled in the wound it soon becomes adherent, and, after a few days have passed by, the little bead of iris shrinks away, or remains for a while as a small hernia.

The operation proposed by Dr. A. von Graefe is not very difficult to perform, and is not attended with subsequent inflammation; indeed, it may be undertaken, and often succeeds best during the active con-

gestion of the acute form of glaucoma. The simplest treatment afterwards suffices; the lids should be closed for a few days with a small strip of plaster, and a piece of wet rag may be laid upon the eye if agreeable to the patient's sensations.

For a day or two after the operation the aqueous humour drains away, but soon the incision unites and the anterior chamber again fills. The hardness of the globe is at once lessened, and gradually diminishes till a natural tension is attained. The pain generally at once abates and soon altogether ceases; usually there is at once a slight improvement of vision, and this goes on steadily increasing for some time. The dulness of the cornea and the diffused haziness of the humour disappear, and, in many instances at least, the iris regains its natural brightness and its functions. I mention this latter fact particularly, because statements have appeared in print, that the iris becomes atrophied after the operation. The enlarged ciliary veins decrease, and soon the eyeball resumes a more natural appearance; indeed, the artificial coloboma is the only striking tell-tale which is left, and if the excision has been made under cover of the upper lid, even this is concealed from view. Coincident with these changes a similar improvement is going on in the deeper parts of the eyeball. The vitreous humour regains its clearness, and the ophthalmoscope shows us that the pulsation of the central artery of the retina ceases; the retinal ecchymoses, which Dr. A. von Graefe says often increase immediately after the operation, undergo absorption in the course of a few weeks; and the turgid, dilated veins regain a natural size.

The improvement is most strongly marked in the acute cases, and the more early the operation the more successful is the result obtained. I have seen patients who previously had only a faint perception of large objects, afterwards able to read; and others who had merely a perception of lights and shadows have regained a most useful amount of vision. One very remarkable circumstance is the gradual increase of the visual field to its natural limits; patients have more than once remarked, "My sight is no longer so contracted."

In chronic glaucoma, the results are not so striking as in the acute form; nor need this surprise us, for the rapid blindness which occurs in the early stage of acute glaucoma is the direct effect of pressure upon the retina, rather than the consequence of structural changes; while in chronic glaucoma, structural changes in the retina proceed, *pari passu*, with gradual increase of pressure and the diminution of sight; yet, even in those cases of chronic glaucoma in which no obvious improvement has followed the operation, it appears to arrest the progress of the disease, and to preserve to the sufferer what little sight he has left. Future experience can alone determine whether the relief is permanent. A very important question is the expediency of performing the operation in the premonitory period, which, in about three-fourths of all the cases, precedes the more urgent symptoms. The difficulty of coming to a correct solution of this question

will be increased in proportion as the early symptoms are vague; but when they are strongly marked, the known undeviating course of the disease will justify us in recommending the operation even at this early period.

I have hitherto abstained from entering into any speculations as to how excision of a portion of iris can reduce the over-tension of the eye-ball: that it does so is an established fact, but the theory of the procedure is very far from clear. Dr. A. von Graefe himself conjectures that the reduction of the tension may be effected by a combination of circumstances, which comprehend the diminution of the secretory surface (of the iris), the relaxation of the tensor muscle of the choroid (ciliary muscle), and the influence which iridectomy exerts upon the circulation of the choroid.

The following we believe to be Mr. Bowman's views:—He supposes that the primary relief of the internal tension is due to the aqueous humour escaping at the time of the operation, and continuing to trickle through the puncture in diminishing quantity during the few days occupied by the healing process. During this first period the eye-ball, he says, becomes more soft than natural, and the lens remains in contact, or nearly so, with the cornea. As the wound becomes firmly united, the gap formed by the removal of the iris allows the aqueous and vitreous humour to come together (of course with the intervention of the delicate hyaloid and suspensory ligament), whereas the iris was before an effectual barrier between them, it being now clearly ascertained by the researches of Crämer, Donders, and others, that the iris is naturally applied closely to the surface of the lens, and admits no aqueous humour through the pupil—in fact, that no posterior chamber of the aqueous humour in reality exists. In glaucoma, the lens is usually forced forward, and the iris projected in front of it so as to be even more closely and firmly in contact with it than natural. Mr. Bowman conceives the result of excision of the iris probably to be, that the redundant fluid effused behind, and mingled with the vitreous humour, causing it to compress the retina, is permitted to transude into the aqueous humour, and then to escape from the eye either by exosmose through the cornea (a road not previously open to it), or by being absorbed by the vessels distributed on the anterior surface of the iris. As this removal of the effused fluid gradually takes place, opportunity is given for progressive restoration of the aqueous humour in its natural quantity, and for the return of the lens and iris to their proper positions, while the globe acquires more firmness, without again becoming tense. As observed by Mr. Bowman, however, an eye thus treated is very apt to lose the power of adaptation to near vision, which it may have in some cases retained in chronic glaucoma up to the time of the operation: the exercise of this power depending on an increase of the curvature of the lens in the pupillary area under the pressure of the iris on its marginal region, an action which becomes almost, if not quite impos-

sible, when part of the iris is excised. It thus, he says, may sometimes happen that an eye which is gradually and certainly losing all sight under the advancing disease, but which under favourable conditions, and with the aid of a convex glass, retains the faculty of reading even small print within a few degrees of the axis of vision, may lose some of this power by the operation, and nevertheless obtain a much wider range of sight, and secure that range permanently, by the subsidence of the morbid process consequent on the relief given to internal pressure. It is of course desirable in all cases, as pointed out by Dr. A. von Graefe, to excise as small a portion of the iris as shall suffice to secure the cessation of the disease. Future experience will probably serve to determine how much may be necessary for this, under the varying intensity of symptoms, and at different stages of its progress.

Another explanation has been offered by Mr. Critchett, who makes a smaller incision in the cornea, a little within its margin, and leaves the iris entangled in it, by which, he says, time is allowed for the adjustment of the normal tensions, and a sort of safety-valve is left for a time, to prevent such equilibrium from being again disturbed.

Though all originality is due to Dr. A. von Graefe for the treatment of glaucoma by iridectomy, yet it is interesting to observe that the operation of paracentesis of the eyeball has been performed from very early ages; but such extreme difference of opinion has always prevailed as to the cases in which it is appropriate, and its value has been so variously estimated, that even to the present day the operation has never come into general use.

To go no farther back than Riverius, 1679, Jobus à Meekren, 1682, Antonius Nuck, 1696, we find the operation recommended, and designs are given for suitable instruments. The operation had been recommended in hypopyon, in onyx, in cases where blood was effused into the anterior chamber, and in dropsy of the eyeball; but great credit is due to Wardrop, who gave it an extensive trial, and first attempted to define the cases in which it was likely to prove useful. His observations are recorded in 'Medico-Chirurgical Transactions,' vol. iv., 1813; he employed puncture of the cornea in cases both of superficial and of deep-seated inflammation of the eye, and with a view to lessen fulness and congestion.

Stimulated by Wardrop's success many other surgeons, among whom I may mention the names of Langenbeck and Walther, warmly took up the operation, but their experience did not altogether tally with Wardrop's, and the operation again fell into disuse. In our own day paracentesis of the eyeball has been recommended by no one more strongly than by Desmarres, who punctures the cornea more frequently than the sclerotica. For puncturing the cornea to let out the aqueous humour only, he prefers a needle with a shoulder or stop, which limits the distance to which the point can enter the anterior chamber; but he says if pus or lymph is to be evacuated, a larger in-

cision should be made with a knife. For puncturing the sclerotic he employs a larger needle, also provided with a stop, and grooved; he plunges this instrument through the sclerotica, a few lines distant from the margin of the cornea, between the tendons of the lower and outer recti muscles; and if a portion of the vitreous humour does not flow readily away, he passes a probe or curette along the groove of the needle into the humour, and, by breaking up the hyaloid membrane, favours its escape. In this way he treats the inflammation which sometimes follows needle operations for cataract, and he also appears to employ it in deep-seated inflammation generally. When his object is to evacuate collections of fluid, as in sub-retinal dropsy, he pierces the sclerotica further back, to avoid wounding the lens. Among English surgeons of our own day paracentesis has gained but little favour, though most persons have occasionally performed it. Mr. William Martin, Superintendent of the Calcutta Eye Infirmary, speaks highly of its beneficial action in fulness of the globe, with pain of a tensive character, and has recorded several cases in which he tried it with advantage (Indian Annals of Medical Science, and Report of Cases, &c., published Reigate, 1857). The frequency with which it often has to be repeated, and the temporary nature of the relief which it affords, constitute the chief objections to this operation.—*Medical Times and Gazette, Jan. 23 and March 27, 1858, pp.* 100, 316.

106.—THE NEW OPERATION FOR GLAUCOMA.

The new operation is one originated by M. GRAEFE of Berlin, and practised by him on a very extensive scale. Its principles, however, as we shall have to show, have not been wholly overlooked by former ophthalmic surgeons, though none certainly ever proposed so bold a manner for its carrying out. It has long been well known that in certain forms of ophthalmia, some chronic and others very rapid in their course, the globe coincidently with intense pain, and loss of sight, becomes very hard, its humours meanwhile undergoing a peculiar loss of translucency. In these cases it is evident that there is increased tension from increase of the fluid contents of the strongly encapsuled globe. To relieve this tension by paracentesis has long been acknowledged to be an important aim in their treatment, though now in looking back on actual practice it must be acknowledged as strange that so palpable an indication was very rarely carried out. It had, however, its strenuous advocates. Without stopping to inquire in what tissue of the eye the primary inflammation occurred, it will be sufficient for our present purpose to state that the increased tension of the whole globe was an amply abundant explanation of the loss of vision, without supposing any actual disorganisation of the retina. The disease we allude to has been known, for want of a better, by the name of glaucoma, acute or chronic, as the case might be, the acute

often destroying sight in a few days, the chronic requiring as many months.

Now it is in these cases that Graefe had advised the bold measure of a free incision into the eye, the evacuation of the whole of the aqueous humour, and the removal of from a fifth to a third of the iris. In explaining its good effects as due to relief of tension, we beg to be understood as offering what has appeared to English observers the most probable, not as representing its originator's views. The mode in which Graefe performs the operation is by passing a Beer's cataract knife into the sclerotic, about a line's distance from the margin of the cornea on the outer side, and having directed it forwards into the anterior chamber, cutting upwards so as to make an incision nearly half an inch in length. Through this the iris readily prolapses, or if it do not, is easily drawn by forceps, and a portion of it, varying from a fifth to a third of its whole, is cut away. The remains of the prolapsed iris is left in the wound. This is a fair description of the operation, as we have repeatedly seen it performed by Mr. Bowman, who was, we believe, the first to adopt it in this country. Mr. Bowman, however, prefers, instead of operating on the outer side of the eye, to cut obliquely upwards. This secures that a portion of the large unshapely pupil shall be concealed under the upper lid. Mr. Critchett has endeavoured to carry out what he believes to be the the principle of Graefe's, by a somewhat simpler procedure. He merely punctures the cornea, and draws out a portion of iris, performing, in fact, an operation for a large artificial pupil. He leaves the iris in the wound, holding that so left it secures a certain amount of draining away of the aqueous humour, acting as a sort of tent in preventing the healing of the wound.

As regards results, we believe we may state that in cases of acute glaucoma, those for example, in which the sight has been very seriously damaged, in the course of twelve hours, or at most a few days, the operation is of the greatest possible benefit. Its introduction into practice is to be hailed the more gladly, because it is generally acknowledged that in this affection constitutional treatment is of very little avail. The only expedient really efficient for its relief formerly known was paracentesis of the globe, and of this, if not repeated at frequent intervals, the benefits, as might be expected, were too often only temporary. It did not secure a sufficient permanent escape of fluid from the over distended globe. In all the cases of acute glaucoma in which we have seen it practised, the relief to pain has been prompt and complete, whilst in most the sight has been much improved. It would appear that improvement in vision may be expected to continue for two or three weeks afterwards, when if the case have done well it becomes stationary and permanent. Of the advantage of the operation in cases of chronic glaucoma, by far the larger class, we must speak much more cautiously. Some cases have seemed to derive benefit, others not. The matter is yet *sub judice.*

Enough has, however, certainly been proved in favour of the operation to merit for it a patient trial from British Ophthalmic Surgeons. The disease, be it remembered, is one otherwise hopeless, or nearly so.—*Med. Times and Gazette, Jan.* 9, 1858, *p.* 33.

107.—*Nitrate of Silver Drops.*—One grain to the ounce of distilled water is the strength of nitrate of silver drops employed at the Moorfields Hospital. These drops are held to be an absolute specific in cases of catarrhal ophthalmia, but are very rarely used in any other form. They will cure also the purulent form, but against it the alum is equally, if not still more efficient. With these two exceptions there is scarcely a form of acute inflammation of the eye in which the surgeons to this hospital do not strongly disapprove of the use of topical stimulants. In cases of catarrhal ophthalmia, on the contrary, so marked is the effect of the nitrate that constitutional measures are hardly ever thought of. The cure is held to be likely to occupy about the same time that the disease had previously existed, the latter being much more quickly curable if it come under the proper measure in an early stage.—*Med. Times and Gazette, Jan.* 9, 1858, *p.* 35.

108.—*Alum Lotion.*—The strength of this lotion is eight grains to the ounce. It is specific against the purulent ophthalmia of infants if properly and freely used. It is also occasionally ordered in other forms of muco-purulent inflammation of the conjunctiva. A stronger alum lotion (lotio aluminis fortior) has a scruple to the ounce.—*Med. Times and Gazette, Jan.* 9, 1858, *p.* 35.

109.—*Vinegar Lotion.*—This lotion is almost exclusively employed to remove lime from the eye. Its strength is half a drachm of distilled vinegar to an ounce of water. Of course the sooner it is resorted to after the accident the better. It should also be very freely used, the lids being everted, and well washed.—*Med. Times and Gazette, Jan.* 9, 1858, *p.* 35.

110.—*Lead Lotion.*—Two grains of the acetate of lead, dissolved in an ounce of distilled water, is the formula for this invaluable lotion. It may be used with the happiest effects in many forms of conjunctival inflammation in which stimulants would be injurious. Very frequently after other lotions have effected a certain amount of benefit, but their good influence appears to have ceased, the use of lead will serve a most opportune purpose. Although the importance of the accident has, we believe, been much exaggerated, yet it is of course desirable

to avoid the employment of this salt in all cases in which the cornea is actually ulcerated, for fear of its deposition in the cicatrix. It is to be observed, however, that as a lotion it is not intended to be actually dropped into the eye, but only applied to the lids.—*Med. Times and Gazette, Jan. 9, 1858, p. 35.*

111.—ON THE ARTIFICIAL TYMPANUM.

By JAMES YEARSLEY, Esq., Surgeon to the Metropolitan Ear Infirmary, &c.

[It will perhaps be known to many of our readers that Mr. Toynbee has questioned the originality of Mr. Yearsley's principle of treatment of loss of the membrana tympani, or a portion of it, Mr. Toynbee has himself on the same principle recommended the use of an artificial membrane composed of vulcanized india-rubber, instead of moistened cotton wool, as first used by Mr. Yearsley. Mr. Yearsley says :—]

1. I claim to have discovered a new principle of treatment applicable to cases of deafness, attended by perforation of the membrana tympani. Whatever be the material employed, whether it be cotton wool, sheep's-wool, sponge, gutta percha membrane, vulcanized india-rubber membrane, a piece of bacon fat, a piece of stick, or a piece of whipcord, each of which has been found more or less successful, this claim cannot be invalidated.

2. I claim for moistened cotton-wool a superiority over all other substances, as the best material to be used, for the following reasons: 1. It is more easily applied. 2. It is simple, safe, and cleanly. 3. It retains its proper position longer. 4. It causes no irritation, but, on the contrary a feeling of comfort. 5. It produces no noises in the ear in the acts of eating or talking. 6. It *cures* the discharge of the ear which generally attends loss of the membrana tympani. 7. It produces the highest degree of hearing of which a patient with perforated tympanum is susceptible. With respect to the substitute of Mr. Toynbee, I speak more upon the evidence of patients than my own, for I confess to have little experience of its use, common sense having raised up in my mind insuperable objections to its adoption. Upon that evidence I affirm—1. It is *not* easily applied. 2. It is rude in its construction, rough when applied to the sensitive walls of the meatus, and unbearable in the great majority of cases to the patient. Of this Mr. Toynbee must be well aware, when he recommended that at first it should be only worn for half an hour at a time. 3. It is constantly falling out of its place. 4. It is a frequent source of irritation and annoyance to the patient, to which very few will submit. 5. It produces noises in the ear on any movement of the jaw, such as in eating or talking, which is a great source of complaint. 6. It keeps up, instead of *curing*, the discharge which attends upon cases of per-

forated membrana tympani. 7. Whilst all these objections obtain, I am prepared to concede that it is as capable of producing the desired effect as the wetted cotton or any other material.

3. I maintain that to be successful, the orifice in the membrana tympani must neither be filled in nor completely covered by the cotton, and that an opening must be left along the walls of the meatus, down to the site of the membrana tympani. The only author who has written upon this question is Mr. Pilcher, and here is his opinion :—"In my experience, the more complete closure of an aperture in the ulcerated membrane by Mr. Toynbee's artificial membrane has not been attended with such useful results as the imperfect closure by the wetted cotton introduced by Mr. Yearsley." (p. 28, 'On the Physiology of the Tympanum.') It is frequently difficult to demonstrate the fact of incomplete closure of the perforation after the cotton is put in its proper position, though in almost every case you can, by the aid of the speculum, see that the remaining membrane is not covered; but I submit that the facts advanced in another part of this paper, added to the testimony of patients, are amply sufficient to prove that a closed cavity is not a *sine quâ non* for success.

4. I believe that the theory of the *modus operandi* is as follows :—The partial loss of the membrana tympani deprives the ossicula of their natural support and tension; the cotton-wool is so adjusted against the remaining portion of membrane as to afford the necessary support to the ossicula; and then the waves of sound break upon the cotton, cause the membrane and chain of bones to vibrate, through which the impulse is conveyed onwards to the fenestræ, to the expansion of the auditory nerve in the labyrinth, and finally to the brain. I will mention one fact in support of the non-closure theory. Many a time and oft have I, in my attempts to find the desired spot on which to place the cotton, produced the improved hearing only so long as the point of my probe was in contact with the ruptured membrane. The probe being withdrawn, the effect ceased. Now Mr. Toynbee will not venture to assert that in this manipulation I produced a closure of the cavity. I am very much inclined to think, and it is worthy of experiment, that Mr. Toynbee's patients would find his instrument as effectual *minus* the vulcanized membrane.

5. Any substance will produce the desired effect if applied so as to support the remaining portion of membrane or the ossicula, but cotton wool is the best, for the reasons already assigned.

A small piece of wool, differing in size according to the case, and fully moistened in water, is introduced through the speculum to the bottom of the meatus, and adjusted superiorly, inferiorly, anteriorly, or posteriorly, according to the situation of the perforation, and other circumstances connected with the case; but *care must be taken* that the *entire* opening *be not covered*, otherwise the experiment will not succeed.—*Med. Times and Gazette, Dec. 5, 1857, p. 575.*

MIDWIFERY,

AND THE DISEASES OF WOMEN, ETC.

112.—ON THE SEVERE AND OBSTINATE FORMS OF VOMITING DURING THE LATTER MONTHS OF PREGNANCY.

By Dr. CHARLES CLAY, Author of "Results of Ovariotomy," &c., Manchester.

[In the following interesting case the patient had aborted five times in succession, and Dr. Clay was consulted on her becoming pregnant for the sixth time. By great care, recumbent position, limited exercise, close attention to the state of the bowels, with an occasional opiate when indicated by uterine excitement, the tendency to abort was controlled beyond the period at which it had originally occurred previously, namely, to about the seventh month. At this period severe and incessant vomiting came on immediately after taking any food or drink. Every variety of food and drink was tried, together with recumbent position, little or no exercise, mild aperients and opiates when necessary, and the *materia medica* was ransacked for some remedy to afford relief, but in vain. The only exception was the common carbon. magnes. grs. vi, vel viij., in as many fluid ounces of dill water, a table-spoonful taken frequently, and the relief from this was very transient. At last the patient was so reduced that the induction of premature labour became absolutely necessary.]

I introduced my finger with the view of guiding an instrument to rupture the membranes and induce premature labour, when I found, on touching the os and cervix uteri, great tenderness and pain—so much so, that the slightest pressure almost instantly produced violent efforts of vomiting. At this discovery, it struck me as advisable, before inducing premature labour, to try the effect of lying quite prostrate on the back, with the head very low and hips considerably raised, and taking very small portions of food at considerable intervals, such as concentrated beef-tea, &c. By constantly enjoining this position, I found the disposition to vomit much less, and about twenty-four hours after small portions of food were retained. Encouraged by this success, and my patient having now reached the completion of the eighth month, I felt it my duty to advise a strict perseverance in maintaining this position, and so long as it was followed

the sickness gradually abated, and ultimately entirely left; food was retained on the stomach, and my patient gradually gained strength. But up to the full gestative period (which she most fortunately accomplished), the slightest attempt to resume the upright position at any time, or even sitting up in bed, was almost immediately followed by violent retching and distressing vomiting. Thus, for the last month, my patient was kept almost constantly on her back, with her head low and hips raised; by which means the os and cervix were relieved from the pressure to which they had been subject in the upright position. Little or no medicine was given during this time; the acidity and flatulent eructations ceased altogether before the time of labour, which took place on the 26th of January, 1856, at the full period of gestation. She was safely and easily delivered of a male child. The process was perfectly natural, but the pains somewhat severe; there was, however, no peculiarity worth notice. She recovered rapidly, soon gained her usual strength, and ultimately did extremely well; indeed, few cases of so obstinate a character terminate as satisfactorily as this.

[Dr. Clay relates a second case which ended fatally. The following is his third case]:—

Subsequently to the two cases just narrated, I was consulted by the medical attendant of a lady under very similar circumstances in almost every particular; and on the prominent fact being ascertained that the os and cervix uteri were extremely tender, and painful to the touch, causing the same disturbance and aggravation of symptoms as in the two former cases, I at once recommended four or five leeches to be applied, by means of a speculum, to the turgid os and cervix uteri; at the same time rigidly enforcing the position of lying on the back, as before described, with small portions of concentrated food at long intervals. These applications, though very simple, had the desired effect of immediately relieving the distressing symptoms; and in a few days the lady was so much improved in every respect that she was anxious to assume the upright position, or at least to sit up in bed. This, however, I could not consent to (knowing the liability of such symptoms to relapse), without first ascertaining if any tenderness remained at the os and cervix. Finding, on examination, some tenderness still remaining, though pressure did not now excite vomiting, I advised four more leeches, and to continue the position a few days longer. This had the desired effect; and in about a fortnight from the first application of the leeches, she was entirely free from every distressing symptom, and pursued her household duties without any inconvenience. She progressed most favourably to the full period of gestation, at which time she was safely delivered: both mother and child ultimately did extremely well.

Observations.—From the peculiarities presented in these cases we may derive considerable interest and valuable instruction, more parti-

cularly as they are such as are very likely to occur to any practitioner. I feel convinced that there is pretty generally, if not always, considerable congestive inflammation and great tenderness about the os and cervix uteri which are best treated by local bleeding at the seat of mischief. That the irritable state of the stomach is purely symptomatic of that condition of the os and cervix uteri (that is) in these obstinate cases of the latter months. That these cases differ widely from, and must not be confounded with, those of nausea and sickness of the early months, however severe; and where the stomach itself particularly, and in some measure the entire digestive functions are much deranged: and attention to the condition of the stomach will in most, if not in all cases, be remedied by medicine and diet. That diet or medicine have little or no effect in the severer cases above described, *in the latter months;* but that a position of the body calculated to relieve the os and cervix from pressure against the pelvic viscera, is best accomplished by lying on the back with the hips raised and head low, with food in very small quantities given at long intervals. *Lastly*, and mainly, I rely on the application of a few leeches, applied through the speculum, direct to the os and cervix uteri, the seat of congestive inflammation, and consequently the cause of general irritation and sympathetic action of the stomach and its consequences. The leeches are to be repeated if any tenderness remains, and the position strictly observed until the symptoms are entirely conquered. I do not say that this plan would succeed in all cases; but where medicine and diet alone have done so little, means so simple and, I believe, so effective, should not be altogether lost sight of; more particularly because if I am right that the condition of the stomach is purely sympathetic of the congested state of the os and cervix uteri, it is perfectly useless to trouble the patient with medicines, as they only add to instead of diminish the severity of the symptoms.

This peculiar condition of the os and cervix is not often noticed in the *post-mortem* examination of cases ending fatally; and this because death is mostly preceded by premature labour, and the loss of blood consequent on that alters the condition of the os so much as easily to escape detection. There are, I believe, some few cases recorded where another and very different peculiarity exists; that is, when the attacks of vomiting come on when the patient is laid down, consequently most frequently in bed: such a condition is, however, extremely rare, and could not arise from any congestion of the os and cervix, but probably from some partial congestion of the uterine structure at or near the fundus uteri. I had a case or two some years ago of this description which had this character, as no tenderness was discovered at the os, but great pain and tenderness were found on the slightest pressure on the fundus uteri, accompanied by an aggravation of symptoms whenever the test of pressure was applied: these cases were soon relieved by stupes of warm turpentine and water, and the loss of a few ounces of blood from the arm.

The cases here recorded serve to show the obstinate character of the malady; that little relief is to be expected from medicine or diet; that the seat of mischief is not, as it has generally been conceived, at the stomach, but at the os and cervix; the stomach merely acting sympathetically, whilst the condition of uterine structure at the os is that of congestive inflammation.

If my views are correct they are sufficiently explanatory why so little good has ever been effected by medicine in these obstinate cases; and also explain the fact of no apparent cause discoverable after death to account for the severe symptoms during life beyond the sinking from mere starvation. In such cases nature herself seems to me to indicate the seat of mischief, and suggests the proper remedy by exciting the stomach to sympathetic action, *that very act alone* controlling in some measure the progress of the inflammatory attack, and preventing the local from becoming general inflammation · and, lastly, by premature labour occurring spontaneously, *if not artificially* induced.

The treatment of such cases has hitherto been so contradictory and unsatisfactory as to justify the opinion that the real cause has not been sufficiently attended to, consequently there can be no impropriety in directing attention to a plan of procedure that is apparently based on reasonable grounds. The cases related were similar in all their leading features, and the treatment of the last would in all probability have succeeded in the fatal case if adopted in sufficient time; local bleeding suggests itself to me as the most probable means of relief we have at command, but that must be assisted by causing as little pressure on the part suffering from congestive inflammation as possible, and this can only be done by lying on the back as directed, and keeping the stomach as empty as possible for a considerable time. General bleeding cannot be so effective as when the congested part can be reached directly by leeches, but in cases where some other portion of the uterine structure suffers, and which cannot be so reached, then, general bleeding must be resorted to. Drastic, particularly aloetic purges, are inadmissible, and rather increase than lessen the mischief.

I give these observations and cases in the hope of eliciting information from others. My mode of treatment is embodied in the third case, and if it is found to be based on sound principles and proves to be the means of saving life, I shall feel amply gratified.—*Midland Med. Journal, Vol. I., p.* 195.

[illegible].—*On the Utility of Chloroform in Turning.* By Dr. J. M. Winn, Physician-Accoucheur to the West London Dispensary, &c.—Several months since I was requested to consult with Mr. —— on one of the most aggravated cases of shoulder presentation I ever witnessed. During ineffective efforts to turn he had brought both arms into the vagina, and the uterus had contracted so violently upon the child that I found it utterly impossible to introduce my hand. Had

I persisted in my attempts to do so by manual force alone, I felt confident that the womb would have been ruptured. The patient was a middle-aged woman who had borne many children, and had been subject to epilepsy in her childhood. Although she was much exhausted when I was called in to see her, and various remedies had been used to overcome the spasmodic action of the uterus, this organ maintained its preternatural and vice-like contractility without a moment's intermission. Under these circumstances I resolved to place her fully under the influence of chloroform, and it was not until she was completely overpowered by the anæsthetic effect of this agent that the spasmodic action of the womb subsided. As soon as the relaxation was complete, I introduced my hand, and easily turned the child.

In administering chloroform it must not be forgotten that its effects are often cumulative, and some individuals are peculiarly susceptible to its influence. In the above case the patient was a considerable period before she recovered from its effects, and, at one time, I entertained fears for her recovery. Although I highly deprecate its indiscriminate use in natural labours, I consider it of great service in the management of many cases. In employing chloroform it must not be forgotten that it paralyses the excito-motor nerves of the uterus, as well as those which supply the abdominal muscles with voluntary power. Its use is, therefore, clearly contra-indicated in cases where expulsive power is required. To lull hysterical excitement, to allay *morbid* pain, (by which I mean, *excessive* pain as it occurs in morbidly sensitive females,) to suspend convulsions, to relax the passages, and to blunt pain during severe operations, are the principal indications for its use.—*Lancet, Dec.* 12, 1857, *p.* 598.

114.—CASE OF PUERPERAL COMA.

By Dr. J. M. Winn, Physician-Accoucheur to the West London Dispensary, &c.

A middle-aged stout multipara was seized suddenly after her last confinement with loss of consciousness; the labour was natural and had not been preceded nor followed by convulsions. The friends, imagining the case to be one of apoplexy, were much alarmed, and sent for me in great haste. I found her in a condition closely resembling that induced by pressure on the brain. She was in a perfectly unconscious state, from which no impression made on the senses could rouse her. As the breathing, however, was not stertorous, the heart not much depressed, and the countenance tranquil, I was induced to refer the affection to a class of phenomena which I have termed puerperal coma, to prevent its being confounded with puerperal apoplexy, a disease of infinitely graver importance, and for which a totally different treatment is required. In the above instance, I was glad to have it in my power to assure the relatives of my patient that the

complaint would in all probability terminate safely. The only remedies employed were a mercurial aperient, an ammonia draught every four hours, and the frequent administration of small quantities of fluid nourishment. The result justified my diagnosis: on the following day the comatose state had passed away, and the patient was free from any alarming symptoms.

This affection, in most cases, appears to owe its origin to one or more of the following causes: nervous shock, a loaded portal system, uterine hemorrhage, and the too-frequent administration of cordials and narcotics. A variety of this disorder frequently ensues after convulsions, and which I shall illustrate by a case I saw in consultation with Mr. Charles King, of the City-road.

The patient, a short-necked but not robust young woman, aged 23, was attacked, nine hours after the commencement of her first labour, with violent convulsions, which recurred with little intermission during a period of about five hours. As the os uteri was dilated to the size of a crown piece, it was determined to deliver her as speedily as possible, and, at the same time, by those means which are least likely to irritate the lining membrane of the uterus. After abstracting a small quantity of blood, which had not the slightest effect in allaying the convulsions, we delivered her by craniotomy. After the extraction of the child the convulsions gradually subsided, but a state of profound coma supervened, which continued during a space of two days and a half. For this symptom the mildest remedies alone were had recourse to, such as were employed in the case to which I have previously alluded. I subsequently heard from Mr. King that his patient perfectly recovered.

I cannot help expressing a strong belief that if many of the cases of this description were treated less heroically and by a calmer mode of procedure, the results would be more successful.—*Lancet, Dec.* 12, 1857, *p.* 597.

115.—*Post-Partum Hemorrhage*. By Thos. Elliott, Esq., Carlisle. —[The author strongly recommends the following plan of treatment with a view of inducing uterine contraction, it being, in his experience, an "unfailing remedy."]

It consists of an injection into the rectum of 4 oz. of turpentine, 4 oz. of cold water, and a handful of common salt, forcibly retained by means of a folded napkin firmly pressed against the anus, until violent bearing down or tenesmus is induced. The object is, *first*, to produce continuous reflex action; an action that will last sufficiently long to prevent all risk from relaxation of the womb, since the bearing down of the gut will be necessarily accompanied by the contraction of the womb. *Secondly*, as turpentine, by its stimulating properties, acts as a powerful restorative to the whole system, it becomes a matter of the greatest importance in the selection of the agent chosen for the pur-

pose of inducing reflex action, to make use of one possessing such properties. *Thirdly*, the anti-hemorrhagic properties of turpentine may possibly also prove useful.—*Med. Times and Gazette, Feb.* 6, 1858, *p.* 148.

116.—ON THE TREATMENT OF UTERINE HEMORRHAGE.

By John Higginbottom, Esq., F.R.S., Nottingham.

For the first twenty-five or thirty years of my professional life I had a very extensive midwifery practice, consequently many cases of uterine hemorrhage, and some of them which caused me intense anxiety of mind for the safety of the patient. The first seventeen years of my practice I was in the habit of following the example of my medical brethren in giving, as a medicine, alcohol in the form of port wine and brandy, and the tincture of opium. The tincture of opium—a valuable remedy—was given in proper doses; but the wine and brandy were administered according to the degree of hemorrhage and consequent depression, often with little attention to either the quality or the quantity of the intoxicating fluid, depending on the law of tolerance for safety in such cases.

In these terrific cases, along with the stimulants, were used every local application, as cold water, ice, pressure on the uterus, &c., to cause contraction of the organ. Under such treatment the patient would rally a little; but very soon the sinking pulse, the blanched face, and white lips, would indicate the necessity of more wine or brandy, which was immediately given, very soon to be followed by an increased flooding and consequent lowness. This alternate state of reviving and sinking has continued for several hours, when the stomach has become so much distended and irritated by the stimulants and other fluids given as to produce a full vomiting of the contents of the stomach; after this the hemorrhage has ceased, the patient has gradually recovered, and required nothing more than a little gruel or tea. This happy termination by vomiting does not always take place, but the wine and brandy have been given in such quantities as thoroughly to narcotize the patient; she becomes insensible and comatose, and cannot be roused, and death takes place. Alcohol has caused her death; not the hemorrhage. The following is a case in point:—

In June, 1823, I attended Mrs. M——, in labour; she was of a stout, plethoric habit of body; she had after delivery a very profuse, flooding. The usual stimulants of wine and brandy and also opium, were given her, and the customary local applications were resorted to, with very little effect. Her friends became alarmed for her safety and called in an old physician, without my knowledge, who immediately was dissatisfied with the brandy. He said it was not strong enough, it having been procured from a neighbouring public-house. More brandy, supposed to be of better quality, was procured and given

to the patient. The quantity administered was thought quite requisite to keep up the sinking powers of the patient; insensibility and coma ensued, breathing became heavy and laborious, and in about two hours after her delivery she died. The stomach in this instance unfortunately retained its contents; her only safety would have been a full vomiting of the contents of the stomach. In this instance I have always been of opinion that she died from alcoholic poisoning, and not from the hemorrhage.

The following case will show the value of vomiting in a similar case, and which led me to the disuse of alcoholic stimulants in cases of flooding:—

Mrs. G——, a delicate female, about thirty years of age. I had attended her twice in labour in the years 1821 and 1823, each time she had severe flooding directly after the separation of the placenta. I employed the usual local applications, and administered wine and brandy and tincture of opium. These cases were attended with great anxiety, and I had to remain with my patient several hours before I could leave her with safety.

On her third labour, in the year 1826, I was afraid she would die, after having used all my remedies, and having given her a pint of port wine, and half a pint of brandy, during the three hours after the birth of the child, which proved of no avail, it occurred to me that in both the former times in which I attended her, when I had used similar means to check the hemorrhage, that there was no amendment until she had ejected the contents of the stomach. I was then most anxious that vomiting might take place in hope of relief, as she was rapidly sinking. I thought as vomiting had been so beneficial to her in the former instances, that I was in this case justified in procuring it by giving an emetic. I directly gave her an emetic dose of ipecacuanha; a full vomiting soon succeeded, and a large quantity of fluid was ejected. I was much struck with an expression of my patient, which I had several times before heard in similar cases after vomiting—"Oh, I'm better: I'm better now!" The hemorrhage ceased directly, and did not return, the symptoms of sinking abated, and the patient appeared soon in her usual state of body, but very feeble; a little plain gruel was all the nutriment given her, and she recovered gradually from the weak state.

I attended the same patient three times afterwards, in the years 1827, 1829, and 1831, and, what is very satisfactory in favour of the secale cornutum, which was about that time coming into use in this locality, I gave her in every case half a drachm of the powder before the birth of the child, a second dose before the separation of the placenta. This remedy had the desired effect of preventing the hemorrhage, so that I had no further need of the ipecacuanha, or indeed any other remedy.

I have attended patients since that time, when the secale had no effect in checking the flooding, both in my own practice, and in con-

sultation; and I have resorted to the ipecacuanha emetic, when other means have failed, and with immediate success.

For more than thirty years I have lost all confidence in the diffusible stimulants, such as wine, brandy, &c., in uterine hemorrhage, from a conviction that they increase the arterial circulation, and consequently the hemorrhage. The common practice of giving the patient a little cold water, or vinegar and water, to drink, and keeping the body in a cool state by means of a well-ventilated, cool room, are more likely to restrain the hemorrhage, and thus preserve the strength of the patient.

The ipecacuanha emetic, in half-drachm doses, I consider a perfectly safe remedy, which may be used in any case of severe flooding, but I have hitherto given it as a *dernier ressort*. I have found the secale cornutum, *if good*, to answer in most cases. In other cases, I have given a drachm of the tincture of opium with decided benefit: if not fully relieved, in half an hour, half a drachm more, but I have had very rarely to repeat the remedy a third time; the tincture of opium has the effect of checking the hemorrhage, and also of relieving the pain.—*Lancet, March* 6, 1858, *p* 237.

117.—OPIUM IN UTERINE HEMORRHAGE.

By John Gabb, Esq., Bewdley.

[Opium has a very different effect as it is given in large or moderate doses.]

Considering the physiological action of the drug as described in "Pereira" and other works on Materia Medica, it appears likely to be useful, or the contrary, in diminishing hemorrhage according to the dose in which it is administered; *a very full dose* being likely enough to produce relaxation, whilst a moderate dose, without doubt, produces contraction of the uterus. Many persons have given cases with a view of showing the relaxing effect of opium on the uterus, when administered in *full doses*. The following case, though not one of uterine hemorrhage, very well illustrates the stimulant action of the same medicine when given in moderate doses. Two years ago I was requested to attend Mrs. A. in her confinement with her first child, she being in the 43rd year of her age; of course I expected a tedious labour. She lived in the country, and I was obliged to remain with her forty-eight hours before the labour was completed. She had suffered much for many hours; the liquor amnii had escaped—the os uteri was not completely dilated—she had taken sufficient nourishment to prevent exhaustion from want of food, chiefly gruel and toast and tea. No progress had been made. The pains, though severe, were badly borne and inefficient, when I administered what I considered the best stimulant, viz. about 25 drops of laudanum in a little water. The effect was much better than I even expected. The pains became almost directly more powerful and ex-

pulsive, the os uteri rapidly disappeared from the reach of the finger, and the head soon began to press upon the perinæum. More than twelve hours afterwards the case was exactly in the same condition with regard to the perinæum as it had been before with regard to the os uteri. The pains continued to be severe, but ceased to have any expulsive action; the pulse quickened, and other signs of exhaustion began to appear. I repeated the laudanum in the same dose as before, having the forceps in reserve, in case the opium should have no effect. In about ten minutes the stimulant effect of the medicine began to show itself, the pains soon again became powerful and expulsive, and with the aid of pressure on the fundus of the uterus with the hand during each, in about half an hour the head was born. Another pain expelled the child, another the placenta; the uterus contracted firmly, and everything went on well. Mrs. A. was up and in her sitting room within a week,—without leave, for I thought it too soon,—but no harm followed.

Of course opium will not produce uterine contraction under all circumstances. It is only in cases of deficient power from exhaustion or fatigue that it is likely to act beneficially; and I may mention that inertia of the uterus is a condition particularly requiring its administration in moderate doses; for at the same time that it produces contraction, it prevents the effects of the loss of blood. The above, though the real effect of opium in moderate doses, may appear strange at first sight. But how frequently must every practitioner have observed the suspended action of the uterus in consequence of the hasty and improper administration of brandy and other stimulants, by nurses and midwives! the effect is of every-day occurrence.—*Med. Times and Gazette, Feb.* 13, 1858, *p.* 178.

118.—*On the Utility of Galvanism in Accidental Hemorrhage.* By S. J. F. Stafford, Esq., Senior Resident Surgeon to the Lying-in Hospital, Birmingham.—On Wednesday, October 28th, at 10 A.M., I was called in by one of my colleagues to see a patient of his, who had summoned him, supposing herself to be in labour. On arriving at the house, I found her flooding most profusely, and reduced to a state of great exhaustion, and quite pulseless. I made an examination, and discovered the os uteri dilated to about the size of a crown piece, and very rigid, the membranes having ruptured some hours previously, uterine pains being entirely absent. I was satisfied, from being able to sweep my finger round without detecting the placenta, that it was a case of accidental hemorrhage. My colleague informed me that he had given *two* doses of *ergot* without inducing any uterine contractions.

I determined to test the value of galvanism, and was absent from the house some time, in order to procure a machine, and, by means of a magnetico-galvanic apparatus, applied a series of shocks to the ab-

dominal parietes over the uterus. In a few minutes I was gratified to find that powerful contractions were being set up; the head gradually descended sufficiently low to admit of my applying the forceps, and thus labour in a patient almost moribund was brought to a successful termination. The placenta was detached almost immediately, and after its extraction the uterus remained firmly contracted. No further hemorrhage occurred. The patient, under the free exhibition of stimuli and opiates, has progressed favourably. During the application of galvanism she made no complaints that the shocks caused her pain, neither was she sensible of the continuous contractions of the uterus.

I have sent a brief account of this case to show that galvanism, in cases of excessive accidental hemorrhage, may be of service, and should, to say the least, have a fair trial. The surgeon should be satisfied that he is the possessor of an efficient apparatus, otherwise he may attach blame to the galvanism instead of to the faulty machine.—*Lancet, Dec.* 19, 1857, *p.* 626.

119.—ON OBSTINATE MENORRHAGIA.

By Dr. HENRY SAVAGE, Senior Physician to the Samaritan Hospital for Women.

Uterine hemorrhage, unconnected with pregnancy or parturition, occasionally assumes a rebellious form not be understood by the ordinary doctrinal explanations of its pathology. Menorrhagias (or rather metrorrhagias) are said to be active, passive, functional, or symptomatic, according as they are considered to depend on general vascular derangement, on diathesis, or on morbid states of the womb itself. The remedies most useful are such as correspond with these views. Thus cooling purgatives, drastics, antimonials, bleeding, astringents, have each had their advocates. The same may be said of the series of special anti-menorrhagics—bitartrate of potash, oxide of silver, Indian hemp, digitalis, Cayenne pepper, cinnamon, &c., and of the removal from the womb itself of some tangible exciting cause, as polypus in one or other of its innumerable varieties.

The majority of menorrhagias yield to one or other of the above remedies; but some do not. The two following cases, selected from a large number which have come under my notice at the Samaritan Hospital during the last four years, in my opinion, are instructive examples of this intractableclass :—

Case 1.—A woman, aged 36, married, came to the hospital two years and a half ago, having the ordinary appearance of females subject to loss of blood. She was extremely pale, she said she was weak, felt low-spirited and had at last become unequal to her domestic duties, which were far from laborious; she had but two children, and had experienced no privation; she had never noticed any irregularity in the catamenial function till six months after her last confinement, having always felt

well till then. On the reappearance of the catamenia at that period, she lost a great deal of blood. This discharge lasted for three weeks. After a week's interval it again appeared, increasing until about the right catamenial period, according to her calculation, and subsiding gradually to the interval of a week as before, and so continuing ever since, reversing, as it were. the ordinary rule, she having but one week's interval instead of three. A letter from her medical attendant states that this has been going on for eight months. He had tried all the usual remedies without success. A polypus was suspected, but not found. I examined her carefully several times, failing also to find anything more than slight enlargement of the uterus, which had a soft feel, with the os perhaps slightly more open than common. Cold hip-baths, oxide of silver, Indian hemp, &c., were tried for a month. They made but a temporary impression. The interval of cessation extended to a fortnight; but the total amount of loss was still far too great. The uterus was now injected daily with a strong solution of tannin and alum; from four to eight ounces of this was thrown into the cavity of the womb in a continuous and rather forcible stream through a full-sized male catheter, cut off at the end—the os having been previously well dilated by a sponge-tent to ensure free retrogression of the fluid. Internal remedies were discontinued. The hemorrhage now rapidly subsided. At the end of a fortnight it had nearly disappeared. At the end of another month I yielded to her anxiety to return home, and she left the hospital much improved in health and appearance, but the discharge was not quite gone.

The injection from first to last had caused her no pain whatever. She mentioned occasionally only a slight sensation of "drawing and coldness," but not by way of complaint.

In about four months she again came to the hospital. The hemorrhage had begun to increase about two months after she left it. She said she was about the same as at first, and her look corresponded with the statement. Another selection of anti-menorrhagics was tried; they failed as before. Recourse was again had to the tannin and alum injection (tannin, two drachms; alum four drachms; water six ounces). The catamenial interval again quickly extended to a fortnight, and once to three weeks. She remained in the hospital three months. The decrease in quantity seemed to justify my yielding once more to her wish to go home, and agreeing in her supposition that the change would complete the cure. However, in about four months she made her appearance "as bad as ever," so I determined on the following plan:—

A careful examination was again gone through. The uterus felt fuller and softer, and the os more open than natural. The finger could be introduced a little way into the os, but no peculiar soft, pulpy, or vegetating unevenness could be distinguished. The uterine sound showed that the cavity was larger than natural; in fact, the instrument could be easily turned on its curve without much displacement

of the uterus. No hitch or obstruction whatever indicated a polypoid excrescence of any magnitude. The sound, when withdrawn, was covered with blood, which seemed to flow more abundantly in consequence of the disturbance caused by the uterine sound; but this increase lasted only half an hour after the examination was concluded. Not the least pain was caused by any part of the examination.

A large sponge-tent, two inches and a half long, was introduced to its whole length. A still larger was employed the day following. On the third day the os uteri would easily admit two fingers. The patient was then laid upon her back, the legs raised, the hips well supported; in short, placed as in the operation of lithotomy. With Recamier's curette (the larger end of which passed into the cavity of the womb with the utmost facility) I proceeded to scrape with force enough to remove any possible vegetation or fungosity which I considered it a fair presumption to regard as a very probable cause of hemorrhage so inveterate. The operation lasted about six minutes. In that time (the curette being of the largest size) I believe I had completely gone over the entire internal surface of the uterus and its neck. Wherever I felt, through the instrument, a sensation as if it was passing over a velvety surface, there I continued scraping until the surface gave the impression of being comparatively smooth and hard. The patient was asked frequently if the operation gave her pain; but she said she felt none whatever. I constantly withdrew and examined the curette, expecting to see a large collection of vegetations or accumulations of the soft surface I seemed to be scraping off, but the amount altogether did not, by a third, cover the cavity of its spoon-shaped end: much more, however, of a jelly-like, white, tough, transparent mucus came away. The patient was put to bed. The hemorrhage for the first half hour slightly increased. It then began decidedly so to diminish that it was not considered necessary to resort to any of the means provided for the opposite contingency. The next day the hemorrhage was still less, and I thought I could feel that the uterus was smaller. She had passed a good night, and said she felt better and was in no pain. With the view of more effectually destroying the polypoid vegetations, the idea of which the result of the operation seemed to me to confirm, I injected three drachms of the tincture of iodine, of the London Pharmacopœa, into the uterine cavity. The effect was almost magical; the hemorrhage seemed to stop at once. The day following it was almost gone. Two injections of three drachms of the same tincture were used at intervals of three days. Beyond a sensation of warmth, the patient declared she felt nothing; and on this occasion she left the hospital six weeks after her admission. All discharge had ceased for three weeks previously. The womb was clearly much less in size, and the os had closed to its natural dimensions.

I met this patient accidentally in the street a few days ago, nine months after she last left the hospital. She assured me that ever

since the operation her catamenial periods had been perfectly natural. She was walking briskly, and looked in excellent health.

Case 2.—A woman, thirty-four years of age, thin, spare, pallid, nervous, and debilitated, came to the hospital a year ago, complaining of excessive loss of blood at the catamenial periods, which had lasted at least a fortnight at a time during the past two years. The complaint had come on after a miscarriage a year previously. The uterus could be felt soft, larger than natural, and the os open, but not sufficiently so as to admit the finger. The os uteri was dilated by a succession of sponge-tents, but I thought in this case I would try the iodine injection alone. Accordingly, four ounces of a mixture of tincture of iodine and water (equal parts) was injected with some force, in the usual way, into the uterus. The nervous and excitable temperament of this patient, as I anticipated, betrayed some intolerance of such a proceeding. She complained of pain in both groins for some hours afterwards. The next day the hemorrhage was greatly diminished. The same injection was repeated every third day for a fortnight. The uterus now began evidently to return to its right size, and the os to close. She left the hospital two months after her admission. Her health improved rapidly from the first use of the iodine injection.

In this case most of the anti-menorrhagics best esteemed had been administered without any advantage.

The above two cases are types of a vast number of menorrhagias I have treated on a principle involving more or less the supposition that some unnatural condition of the lining membrane of the uterus existed. Injections as mere astringents were used, by Blundell amongst others, years ago. Dr. Locock's gouge, Recamier's curette, Jobert's uterine speculum, Simpson's looped scraper, recognise the same thing, —viz., the possible existence of wonderfully small polypi as the real cause of dangerous uterine hemorrhage; but I am not aware that iodine has ever yet been employed for the same object. Injections of the uterine cavity are regarded by the profession in general as full of danger, and I am not prepared to say they are not so, unless care be taken to secure an unobstructed escape for the fluid by previous ample artificial dilatation of the os and cervix uteri. With this proviso, I have never seen any ill effects from uterine injections; and of all the various solutions I have used and seen used for years past, I have never met with one so satisfactory and so free from objection as the tincture of iodine.

It is also worth while, I think, to direct attention to a point in the *rationale* of uterine hemorrhage exemplified by the use of any means tending to empty the uterine cavity, or otherwise lead to a return to its healthy size and tone. In both the above cases, as well as in all the rest I have met with, the slow contraction of the uterus seemed to keep pace with the diminution of the discharge. I have often seen brought on unintentionally a smart metrorhagia by the introduction of a sponge-tent of the smallest size, which only ceased on the removal of the tent.—*Lancet, Dec.* 5, 1857, *p.* 570.

120.—*Iodide of Potassium in Leucorrhœa.*—Dr. PAYNE recommends the iodide of potassium as an injection in leucorrhœa. It is to be used (ʒ1½ to a pint of water,) 3 or 4 times daily.—*American Med. Journal.—Med. Times and Gazette, Feb.* 13, 1858, *p.* 175.

121.—GASTROTOMY: REMOVAL OF FIBROUS TUMOUR OF UTERUS.

By Dr. JOHN SLOANE, House Surgeon to the Leicester Infirmary.

[The presence of an ovarian tumour on the left side was first detected about three years before the operation detailed below, by Mr. Eddison, of Nottingham. Pulse was 112, very feeble; urine scanty; specific gravity 1013; in other respects normal. The other organs appeared healthy.]

The tumour was believed to be ovarian; and, after two consultations of the surgeons of the Hospital, it was decided to remove it. The patient herself was very anxious to have the operation performed, after she was made acquainted with the dangers she incurred.

Her ward, which contained only two beds, one of which was not occupied, was heated to 70° Fah.; and this degree of temperature was kept up for two days. At 11 A.M., she was removed to an operating-table, placed at her bedside, and, while she was under the influence of chloroform, an incision was made in the mesial line from the umbilicus to the pubes. A considerable quantity of serum escaped, and there was rather profuse hemorrhage. Some old and firm adhesions between the tumour and the abdominal wall were broken up, and several cysts containing serum in the diseased mass were opened to lessen its size, before it could be extracted. The peduncle, nearly circular, was about one inch and a half in diameter. It was perforated by a needle carrying strong whipcord, which was divided, and the four ends were tightly tied. It was then divided between the ligature and the tumour, close to the latter. The edges of the incision in the abdominal walls were drawn together by interrupted suture; compresses were applied; and pressure was kept up by a very broad flannel bandage. During the process of the operation, constant pressure was made on the abdomen by an assistant; yet she appeared to be on the very verge of syncope. After being placed in bed, she gradually rallied for some time, but still continued in a very depressed state. Bottles of hot water were applied to her extremities; and some brandy, beef-tea, etc., were cautiously but assiduously administered. She died about 4 o'clock, five hours after the commencement of the operation.

On dissection seventeen hours after death, very little serum was found in the abdomen, and no blood. There was diffused florid redness of the peritoneum anteriorly. This membrane was lacerated extensively in several places, where adhesions had existed; and the fold reflected from the uterus to the rectum was torn. The divided

peduncle was attached to the fundus of the uterus. The ovaries were not enlarged; they were corrugated, and the left contained several small cysts. In the left pleura were found about two pints of clear serum, with the left lung floating upon it; there were no pleural adhesions. The tumour, after several cysts near its surface had been punctured, weighed fifty ounces. It was solid and hard. In shape and size, it much resembled an adult human brain.

Mr. Paget, of St. Bartholomew's Hospital, to whom half of the tumour was presented, examined it, and reported upon it as follows:—

"The tumour, of which I have received a portion to-day, appears to be a good example of the fibrous tumour of the uterus. It has all the obvious characters of structure belonging to such tumour; and with the microscope one finds in it abundant small smooth muscular fibres and tough fibrous connective tissue. It includes a certain number of cysts, as if in progress towards the characters of the fibro-cystic tumour. A thin layer of substance is separable from parts of the outer surface of the tumour, which I suppose is the peritoneum, and the outer layer of the wall of the uterus, which it has extended in its growth. Beneath this layer also there appears to have been large spaces, which I presume were cysts."

Remarks. In connexion with a case of ovarian tumour which came under my notice in the Leicester Infirmary, and which was reported in last week's Journal, this case of fibrous uterine tumour will serve to impress upon us the impossibility in all instances of distinguishing between these two diseases. The similarity between the two cases is increased by the fact that, in the progress of each, before any operation was resorted to, there were vomiting and repeated attacks of peritonitis. The symptoms of fibrous tumours of the uterus, whether attached to the interior or exterior surface, are, menorrhagia, which generally is present, especially when the growth occupies the interior of the womb; retention, or a frequent desire to pass urine; and variable sensations of pain in the lower part of the abdomen. The last was the only symptom present in this case; whereas the first mentioned, which is the most important, had not occurred. When the tumour was first observed, it was situated low down on the left side, indicating an ovarian origin. But fibrous uterine tumours are seldom mesial; so that position does not assist much in forming a diagnosis; neither does the desire and inability to pass urine, as this symptom is also observed in cases of ovarian tumour. Indeed, various sensations of pain in the lower part of the abdomen are frequent concomitants of ovarian tumour; and, in this disease, menorrhagia is by no means very rare; so that every symptom of uterine fibrous growth may be observed in cases of ovarian tumour; and the converse. According to the observations of Dr. West and Mr. Lee, in more than one-third of the cases, fibrous tumours are situated on the posterior wall of the uterus, causing more or less displacement of the os backwards; and, when the tumour is situated on the anterior wall the os

is of course displaced in the contrary direction; but in this instance, as the growth was attached to the fundus, the uterus occupied its usual position. The slow growth of the tumour certainly indicated a uterine origin; but it appears to me that the bulk of the evidence most accorded with the view that it was ovarian. Immediately before proceeding to perform ovariotomy in cases where a doubt exists as to the nature of the growth, it would be advisable to make a small incision through the abdominal walls, in order to ascertain the colour of the tumour; as, if it be bluish white, it is ovarian; whereas, if it be red, it is probably uterine. If a correct diagnosis had been formed in this case, I do not believe that the operation would have been resorted to; inasmuch as, in the few cases on record in which fibrous outgrowths of the uterus have been removed by gastrotomy, all, except one reported by Atlee, an American, have ended fatally. Besides, these tumours do not tend, as a rule, rapidly to destroy life; and this patient was not exposed to two of the causes which induce a fatal result in this disease. Not being married, she was not likely to become pregnant; and she did not suffer from menorrhagia; but from the occurrence of ascites, it is not probable that she would have survived long.

If the tumour had been ovarian, was ovariotomy advisable in this case? The profession is divided into two parties on this question. One party holds that the operation is so very frequently fatal, that it is never justifiable; the other contends that, in properly selected cases, the operation is not only justifiable, but advisable. In my humble opinion, the position of the latter is best supported by facts. Dr. Clay of Manchester, who has had greater experience in this operation than any other man, last summer had performed it in 79 cases, 55 of which had been successful; but he believes that, with his increased experience, he will not in future lose more than 25 per cent. He has operated on patients as young as twelve, and as old as fifty-eight years; but he would not operate on a patient beyond fifty-eight. He seldom has removed a tumour weighing less than twenty-five pounds; and he has removed as much as seventy-three pounds at one time; but tumours, varying from thirty-five to forty pounds in weight, have been the most common. He prefers a case without adhesions; but he thinks lightly of them, and does not hesitate to operate in cases otherwise favourable. Where they exist, when the adhesions are recent, he detaches them; if firm, he cuts the band near to the tumour, leaving a portion attached to the peritoneal surface. He has often, however, cut away large portions of the peritoneum without bad results; and he does not fear to sponge out the abdominal cavity. He invariably adopts the large incision. According to his statements, most cases of ovarian tumour will be suitable for this operation. The only objection he mentions is, the patient being above 58 years of age; but I presume he would not operate where the patient was very feeble, or suffered from a formidable disease in some other organ. He states

that ovarian tumours "seldom exceed two years without completing their termination some way;" but I have myself met with cases, in which large tumours of the ovary had existed for a long series of years, and were a source of annoyance, chiefly from their weight, and the effects of pressure. Some, I know, run a very rapid course; and, according to Professor Simpson, they may even lead to a fatal result within a year. Cazeaux states that their duration is variable, the average being about four years: whereas Velpeau believes the average to be 6, 10, or 12 years; and, according to Huguier, the younger the patient, the more speedily does she sink under the disease. It appears to me that, in an affection in which the natural tendency to recovery is so very slight, and in which the progress to a fatal result is so certain, and in some cases so rapid, we should be culpable unless we resorted to the means available to science to control or to cure the disease. Ovariotomy is the only remedial measure to which we can resort, with the hope of success, in the cases of multilocular tumour, which are much the most common. But some surgeons under no circumstances will perform this operation. Velpeau states "that extirpation of the ovaries is a fearful operation, and ought to be proscribed, even were the cases which have been announced real." This opinion, I have reason to know, is extensively held by surgeons in our own country. I was told last year by Mr. Hutchinson, of the Metropolitan Free Hospital, that, in three years, reports of about a dozen cases of ovariotomy performed by hospital surgeons had been sent to him; and they every one had ended fatally. Moreover, as far as he knew, the details of not more than one or two of these cases had been published. Dr. Clay's success is extraordinary, and is not approached, I believe, by that of any other practitioner. His plan of operating, and the treatment he adopts subsequently, have been published; and, if carefully followed by other surgeons, one can see no good reason why the results, in other hands, should be so very unfavourable, compared to his.

Tapping is, at the best, only a palliative measure, and is, as you all know, generally had recourse to when urgent dyspnœa is caused by the large mass in the abdomen. It affords information respecting the nature of the tumour, whether it is unilocular or otherwise. If believed to be unilocular after the tapping, the cyst may be dragged through a small incision in the abdominal parietes, and a ligature placed on the pedicle. For this less formidable mode of extirpating an ovarian tumour to prove successful, it is essential that the cyst should be unilocular, which is rare; and that there should be no adhesions, which, according to Clay, is still more rare. In unilocular ovarian tumours, when adhesions do exist after tapping, we may inject the sac with tincture of iodine. This plan of treatment has been employed of late a good deal in this country, and by none, I believe, more frequently than by Professor Simpson. He has adopted this treatment, he states, in twenty or thirty cases; sometimes with complete success, the sac not again becoming filled, and the patient

remaining well and strong; in other cases, the tumour continues present, but has not increased to any great size. In some of the patients, the largest cyst in a multilocular tumour had become obliterated, but the smaller cysts had continued to enlarge; in others, the treatment had failed, inasmuch as the cyst had again filled. In one case only had death resulted; had he attributed the death in this instance rather to the paracentesis than to the injection. The iodine injection, in his hands, has been seldom attended with much pain, or with very severe local or constitutional irritation; but, in the practice of others, the injection has been sometimes followed by unconsciousness which has lasted as many as fifteen hours, and by vomiting which has continued for several days; yet, notwithstanding these grave symptoms, the patients have afterwards done well. A few cases are recorded in which death followed the operation, but in most of these the cavity of the abdomen had received the injection, instead of the ovarian cyst. To prevent the risk of this serious mishap, Mr. Hutchinson recommends a flexible catheter to be passed to pretty nearly its whole length through the canula into the sac before more than half the fluid has escaped, and that the iodine should be injected through the catheter after all the fluid has drained off.

Rather more than a year ago, the treatment of these tumours underwent a lengthened discussion at the Academy of Medicine in France, and the following are some of the propositions deduced from the statements of the speakers by M. Saurel:—"The proceeding to which it is advisable, in almost every case of ovarian cyst, to have recourse, is puncture, followed by iodurctted injection, with occlusion of the opening.

"Unilocular cysts, without organic alterations of their walls, containing a serous or sero-sanguinolent or albuminous fluid, cysts which have originated in an extra-uterine pregnancy, and purulent cysts, are most amenable to treatment.

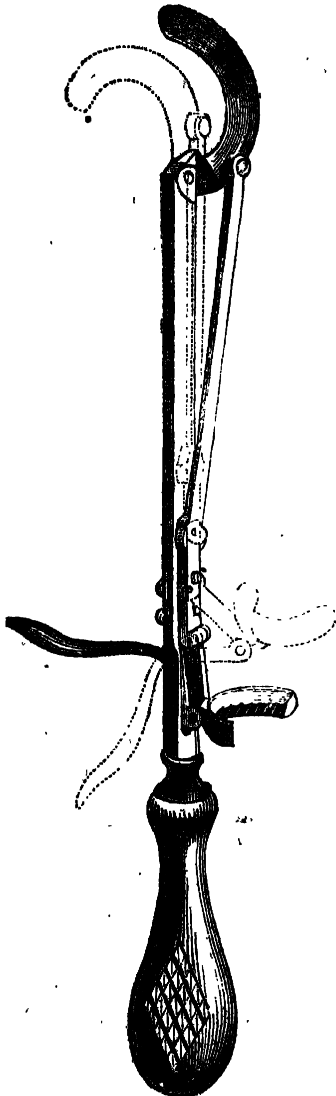
"The proper time to operate is when the cyst, not having yet acquired a large size, is beginning to cause suffering to the patient, or to exercise an injurious reaction upon the functions."

The only form of ovarian tumour which undergoes, and that very rarely, a spontaneous cure, is that composed of a single cyst. This sometimes ruptures, and discharges itself into the peritoneum, or into some viscus with an external outlet. The fluid in the cyst has sometimes become absorbed, and the cavity obliterated.—*Brit. Med. Journal, Feb.* 27, 1858, *p.* 159.

122.—*Case of Removal of Large Uterine Polypus, by the Curved Ecraseur with Double Action.* By Dr. SAVAGE, Samaritan Hospital. —[There had been in this case frequent uterine hemorrhage during the last two years.]

Many examinations had been made elsewhere previously by various surgeons; but a polypus, if suspected, until the day before her admission, was probably quite out of reach. A swelling could even now be scarcely made out by the finger introduced far into the os uteri. Sponge tents were introduced daily. On the third day the tumour became more distinct, and then rapidly distended through the dilated os into the vagina. On the fourth day it could be felt in size and shape like a large jargonel pear (its neck not much less than its body), extending into the uterus to be attached somewhere towards its back part. On the fifth day the polypus was laid hold of by a pair of ring forceps, the looped chain of the écraseur being passed over the handle of the forceps, slipped up, and was drawn tight, precisely as the cord in the ordinary operation by ligature, and the tumour was brought away without pain or hemorrhage. Dr. Savage observed that the unwieldly look of the instrument was suggestive of much pain and difficulty; but its curve fell into the hollow of the sacrum with the utmost facility, and its point as readily passed into the uterus as high as he thought necessary. As the chain is flexible only on one side, much careful manipulation was required before it could be got where he thought it ought to be. Before working the handle which tightened the chain, the single fore-finger readily ascertained that nothing improper was included. The handle was worked at half-minute intervals as soon as decided resistance showed that contraction had commenced. The tumour came away in six minutes. From first to last the patient said she felt no pain whatever. The hemorrhage has not reappeared. Dr. Savage said he had heard of two cases of polypus thus treated in this country, but believed they had not been recorded. He had several times seen M. Chassaignac remove parts highly vascular with his écraseur without the least hemorrhage, and thought, as the plan he had adopted in this case was equally safe as the ligature, without any of its obvious annoyances, he would add his testimony to its value through the Medical Society. Dr. Savage strongly recommended an instrument with the double action, the finishing improvement of the inventor, M. Matthieu.—*Lancet, Nov.* 21, 1857, *p.* 521.

123.—*The Polyptome.*—This instrument has been invented within the last few weeks for Dr. Lever, by Messrs. Bigg & Millikin, of St. Thomas-street, Borough, and is intended to facilitate the operation of removing broad-based uterine polypi. The instrument, as may be seen from the engraving, consists of a semi-circular blade cutting by its concave edge, which plays freely round a circular joint placed at the end of a steel stem or shaft 5½ inches long, when worked by a trigger and thumb-piece or crescent, which pushes a slide and lever acting on the blade, forward and back. When pre-



pared for use, the lever is drawn back, the edge of the blade being then passed over the part which is to be excised; the operator may now make gentle traction by means of the handle, while by pulling the trigger he causes the blade to sweep forward with a cutting movement, for about $1\frac{1}{8}$ inches. The instrument now becomes a cutting-hook, the cutting edge being in the whole length of its concavity. The operation may now be completed with this hook by simple traction, or, if the base be too broad for this to be done, the lever may be withdrawn with the thumb, and the first step of the operation repeated.

This ingenious contrivance gives the operator the advantage of exercising at will either the cutting motion of a knife, or what is technically termed "incision by traction;" an advantage which will, no doubt, be fully appreciated by those surgeons who are at all acquainted with the difficulties met with in performing these operations.

There is an "hook," very similar in shape to that formed by the cutting-blade and shaft of Messrs. Bigg and Millikin's "Polyptome" when the lever is thrust forward, in the Museum of the Royal College of Surgeons. It is evidently of very ancient date, and is unnamed. It lies close to a box of amputating instruments which were taken from the French in Egypt; but it is simply a solid hook, intended only to cut by traction, like the elegant polyptome of Dr. Simpson. — *Med. Times and Gazette, Jan.* 2, 1858, *p.* 9.

124.—SUCCESSFUL REMOVAL OF A LARGE INTRA-UTERINE POLYPUS BY THE ECRASEUR.

Under the care of Dr. PRIESTLEY, St. George's and St. James's Dispensary.

[The patient had suffered from severe and protracted menorrhagia, large clots passing occasionally from the vagina. She was exceedingly anæmic.]

On examination by the vagina, the os uteri was found dilated, and the uterine cavity formed a continuous canal with the vagina, a smooth ring indicating the line of demarcation between the two. Inside the uterus, and with its lower extremity reaching down to the smooth ring indicating the os uteri, was found a firm rounded tumour, the size of an orange. Its attachment was posterior and near the fundus uteri. It had no suspending narrow peduncle, but was sessile, with a base of attachment as broad as the tumour itself. A doubt was at first entertained, from its peculiar form and relations, whether it might not be an inverted uterus. The history did not confirm this, however, and the uterine sound, passing easily upwards four or five inches along the anterior surface of the tumour, left no doubt that it was an intra-uterine polypus.

When the relations of the tumour were accurately ascertained it was proposed to postpone its removal for some little time, in the hope that the uterus would make an effort to expel it, and thus form an elongated peduncle, which might be divided with less risk. Hemorrhage recurred, however, to such an alarming extent that interference became imperative. On the 3rd of July, therefore, Dr. Priestley, assisted by Mr. Spencer Wells, proceeded to excise the mass. The instrument employed was the double-action écraseur, kindly lent for the purpose by Dr. Savage, and which was curved in form, to adapt it to the axes of the pelvis. The patient being placed on the left side, the polypus was first seized with the vulsellum, and while by means of this gentle traction was made downwards, the chain of the écraseur was passed first over the vulsellum, and then over the polypus up to its attachment in the cavity of the uterus. Great care was necessary in pushing up this chain along the genital passages, as, from the irregular form of its divisions, fear was entertained of lacerating or abrading the vagina or uterus.

The base of the tumour being at length reached, the chain was gradually tightened, and in about a minute and a half no further resistance was encountered; the polypus was found loose in the uterine cavity, and was removed by the vulsellum. Scarcely any hemorrhage followed. A small clot, perhaps half an ounce in weight, was removed, and a piece of sponge placed in the vagina. When the sponge was removed the following day, it was scarcely stained with blood, showing that no after-hemorrhage had ensued. Little pain was complained of during the operation, and except that diarrhœa supervened on the

fourth day, there was no unfavourable symptoms. A week after the operation the patient was convalescent, and made an uninterrupted recovery. She is now perfectly well, and has had no recurrence of the hemorrhage; the uterus being nearly of its normal dimensions.

The advantages of the écraseur were particularly manifest in this case. The urgent symptoms of the patient necessitated immediate interference, and the broad attachment of the tumour rendered an operation by excision little less formidable than a so-called enucleation. Removal by a sharp cutting instrument would have threatened severe hemorrhage, not readily controlled by plugging, when the uterus was so flaccid and dilated; while separation by ligature in the ordinary way would, on the other hand, have exposed the patient to all the dangers arising from such a mass slowly putrifying in the vagina.

Dr. Priestley suggests that it might be advantageous to replace the usual hinge-jointed chain of the écraseur, which is managed in such cases with difficulty, by a silver wire, or small linked curb chain. Dr. H. R. Storer, of Boston, U.S., has successfully excised the hypertrophical cervix uteri, by an écraseur furnished with a silver wire; and Dr. P. believes that a wire or curb chain would be passed more easily round a tumour in the uterus or vagina, and that tightened by the écraseur it would act efficiently in cutting through the substance of a tumour or polypus.—*Medical Times and Gazette, Jan.* 30, 1858, *p.* 115.

125.—*Polypus Uteri, and its Cure by a Simple Operation.* By I. BAKER BROWN, Esq.—C. W., aged 37, had during the last four years suffered from constant hemorrhages, which were so severe as to cause syncope, and threatened death. When I saw her she had become anæmic and emaciated. On examination I discovered a polypus about the size of a small pear with a thick base attached just within the os uteri. On November 27, I removed it in the following simple manner. I seized it with a pair of long vulsellum forceps, and dragging it down into sight, passed through the base a needle armed with a double ligature of strong tissue, so as to tie in two parts. I then cut off the polypus just anterior to the ligature, and plugged the vagina with oiled lint; the whole operation lasting two or three minutes. From this time there was no hemorrhage, and in one week she was up and well. This was the first time for four years she had passed one week without hemorrhage.

This plan, which I have practised and advocated for some years past, I consider much superior to either of the two plans generally adopted, viz., either simply cutting off the polypus, or the more tedious process with Gooch's apparatus, where the sloughing of the polypus within the vagina generally causes serious constitutional disturbance; not unfrequently pyæmia, and sometimes death.—*Med. Times and Gazette, Jan.* 16, 1858, *p.* 40.

126.—ON THE PERINÆO PLASTIC OPERATION.

By Dr. Henry Savage, Senior Physician to the Samaritan Hospital for Women.

[Until the last thirty years no surgical means at all were adopted for the permanent relief of prolapsus uteri, and this is the more to be wondered at, from its frequency and the great distress caused by it to the patient.]

The object of this paper is to state as briefly as possible the grounds for surgical interference in this one of the many diseases peculiar to women, which I am disposed to consider, *as a rule*, can only be successfully treated by the knife.

It is reported in the 'Rep. d'Acad. R. de Méd.,' August 11th, 1835, that a M. Girardin proposed excision of the vagina, in 1822. Whether this be true or not, the first proposition of the kind ever carried out, was certainly made in 1831, by one to whom medicine is so universally and deeply indebted—Dr. Marshall Hall.

Before proceeding to an estimate respectively of the various surgical plans adopted since this date, the following considerations deserve notice:—

1. The uterus is retained at its normal *elevation* by special ligaments—the cervical. These ligaments, and these only, tend to prevent prolapsus.

2. All other uterine displacements are checked by the broad ligaments.

3. The true vagina terminates where it perforates the perineal fasciæ, the perineal portion being for the most part mucous and tegumentary.

4. The perineum gives this end of the vagina a direction upwards, the bend or angle commencing at the perineal fasciæ, so that, as in delivery, anything extruded from the vagina, must make a turn up, under the pubic arch.

5. So long as the cervical ligaments are intact, the uterus sustains no superincumbent weight, as, from its pear shape, the surrounding viscera tend to press it upwards.

6. The moment the uterus sinks within the inverted vagina, the two organs constitute a hollow cone, the uterus being at the pendent apex, with every disadvantage, having to sustain all the superincumbent pressure.

7. The vagina does not support the uterus under any circumstances. So long as it is not inverted, the line of superincumbent pressure crosses it, tending to bring its sides together. It is solely in this sense that the vagina can sustain a uterus which has lost the support of its cervical ligaments.

8. The true perineum is formed by the perineal fasciæ, where they all join at a line from one tuber ischii to the other. It can be felt by

the finger as a strong resisting ring, the *vaginal ring*, where at this point it is thickened by erectile tissue and additional fibres.

9. The tegumentary perineum is the mucous membrane and skin beyond.

10. By superincumbent weight, I allude to the downward pressure partly due to the mere weight of the viscera, and partly to the force resulting from the active tension of the abdominal muscles.

The operative procedures hitherto adopted are as follows:—In Dr. Marshall Hall's operation, a strip of vaginal mucous membrane, an inch and a half wide, and extending the whole length of it, is dissected up from the anterior part of the prolapsus. The wound is brought together laterally by interrupted suture, and the parts returned.

Dieffenbach ('Med. Zeitung,' No. 31, 1836) in allusion to his own methods, which were in reality variations of Marshall Hall's method, mentions seven cases of prolapsus uteri, with mortification of the vagina, getting well, on the healing of the wounds caused by the latter; but Velpeau has stated that many of the young French surgeons who went to Poland in 1831, addressed letters to the 'Gazette Médicale' describing operations performed by Dieffenbach, in Berlin, for prolapsus uteri, in all respects like Dupuytren's operation on the rectum for prolapsus recti. Those who followed Marshall Hall, however, evidently recognised his principle in their operations, whether the vaginal mucous membrane was taken away by the knife or destroyed by caustic—actual cautery, nitric acid, or dealt with by serrefins, according to the still more recent and still more promising method of Degrange.

There is no doubt that when any case of Dr. Marshall Hall's operation did succeed, the vagina was released from its tendency to invert, and brought more or less under the condition (7;) and this must be the effect of any sort of efficient pessary; otherwise, the largest, unsustained by some complicated perineal bandage, is, according to my experience, invariably forced out.

I now come to an operation which relieves solely by preventing the escape of the uterus out of the vulva; and the support thus provided, it must never be forgotten, has ever after to sustain all the superincumbent pressure (10), under every mechanical disadvantage (6). The operation in question was first performed by Fricke, of Hamburgh, on the 3rd of March, 1832.

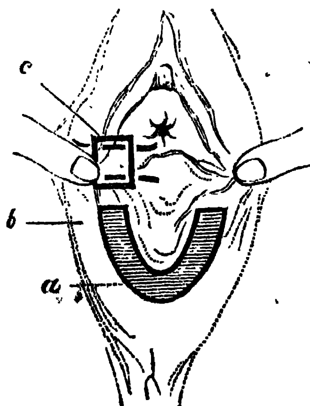
Fricke's operation.—The operator, with a narrow bistoury, *transfixes* the labium so as to cut off a slip, a finger's breadth in width, and of some thickness, commencing the incision two finger's breadth from the upper commissure, and ending by joining at a finger's breadth behind the lower commissure, a slip taken off in a similar way from the other labium. The opposite raw surfaces were only kept together by ten or twelve interrupted sutures, commencing at the lower commissure. A piece of oiled sponge was previously intro-

duced into the vagina to keep up the prolapsus, and the wound brought together laterally by interrupted sutures.

The records of plastic surgery, from the time of Ambrose Paré, who first proposed it, abound in cases of lacerated perinæum treated by twisted, interrupted, and quilled sutures; but I am not aware of a single case of prolapsus uteri treated on the same principle, either before or since Fricke's operation, till Geddings' important modification, in 1839. I ought to mention, that the most interesting monograph (1840) of the latter operator has furnished many of the historical data of this paper.

Geddings' operation.—Having marked off by an incision through the skin of the labium, sweeping around behind the inferior commissure, a segment of labium, corresponding to Fricke's description, Dr. Geddings dissects it up deliberately towards the mucous membrane, continuing so as to remove also a "piece of the latter from the lateral walls of the vagina, an inch and a half broad by two inches long," thus combining, in one operation, the principles of Marshall Hall and Fricke.

FIG 1.



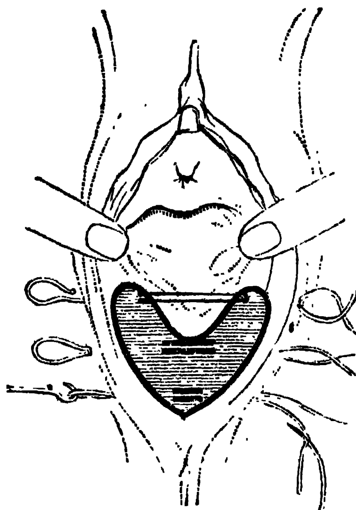
The quilled suture, and five or six points of interrupted suture, were used. The sutures were removed on the sixth day. No sponge was introduced. In short, his proceeding entirely anticipates all that has been done since the date of his publication.

Mr. *Brown* (1853) prefers taking away the mucous membrane as indicated in the annexed diagram, the square marked off higher up indicating an additional excision, with the view of better returning

the prolapsed bladder. He uses the quilled suture, &c., precisely as described by Geddings. (Fig. 1.)

Within the last three years, I have had opportunities of testing the value of the above-described methods on twenty-two cases of prolapsus uteri submitted to operation—viz., one (Hall); three (Geddings); three (Brown); fifteen, my own modification, which is this: (Fig. 2.)

Fig. 2.

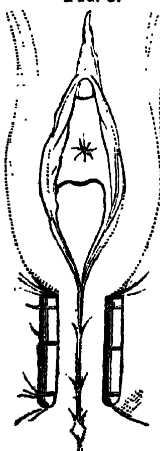


Having, by pinching up the more or less loose flaccid vulva, carefully ascertained how much tegument may be removed, a flap of a suitable size is marked off by a sharp scalpel, and then dissected away, commencing, like Geddings, with the skin, and ending at the vagina; the *entire thickness* of which, however, in my operation, is taken away as far as the perineal fascia. The diagram, fig. 2, sufficiently explains the proceeding. Fig. 3 shows the result after using the quilled suture. The subsequent progress is exactly as before mentioned. (Geddings'.)

Nothing more can possibly be obtained by any modification of Fricke's operation than a diminution of the vaginal aperture, and a form of perineal support, which conjointly will bear the weight of the uterus, and retain it within the vagina under the serious mechanical disadvantages, before alluded to. I have failed in two cases only. These were exceptions, entirely proving a rule, which (judging from my experience) is this: In all cases where the operation has restored the

vaginal angle by the formation of a new perinæum, sufficiently thick and advanced towards the pubis, the operation succeeds; the results improving every day by subsequent contraction of the vagina, and the contraction (slow in proportion to the duration of the prolapsus) of the vaginal ring. The three cases (Brown) were not satisfactory. One of them I did over again according to my own plan, and the patient has ever since (a year ago) shared in the most laborious work of the hospital without pad or bandage. One (Hall) turned out very successful. Prolapsus of the bladder predominated. A piece of mucous membrane, the size and shape of the bowl of a large table-spoon was dissected off the most prominent part of the prolapsus, and the wound brought together laterally by interrupted suture. The patient wore a Zwanke's pessary for a few months, until the cicatrix was firm and secure.

Fig. 3.



The three Geddings' succeeded very well; but besides closing the vaginal orifice more than necessary, the result was rather unsightly. As will immediately appear by the subjoined two cases of failure, the *mere* closing the vaginal orifice is worse than useless. If the uterus is proportionately so small that besides finding its way through the contracted vagina, so as to rest on the new perineum, it can turn the vaginal angle, so as eventually to be retained only by the vaginal aperture, then, however small this may be, the uterus will very shortly make its way out as bad as ever.

The two cases of failure just alluded to were both single women, of good character. The uterus in each was exceedingly small; the same operation which succeeded so well in the other instances was most carefully gone through—in one case twice. Very shortly after the patients began to get about, the uterus passed the angle, and presented at the vaginal orifice, through which it bored its way, notwithstanding all such appliances as belts and pads.

Marshall Hall's operation would probably answer perfectly in such cases as these, where the vagina had not been previously much distended.

Dr. Zwanke, of Hamburgh, about two years ago sent me a dozen various sizes of his extremely ingenious form of pessary. Like the operation just named, this instrument answers by opposing the tendency to vaginal inversion, not as a support. Wherever it failed to do this, it was forced out irresistibly. The practical value of pessaries, however, is not intended to form a part of this communication.—*Lancet, Feb.* 13, 1858, *p.* 164.

127.—*On Prolapsus Uteri.* By I. BAKER BROWN, Esq.—[The impression conveyed to Mr. Brown on the perusal of Dr. Savage's paper on the above subject was, that Mr. Brown had merely followed in the footsteps of Fricke and Geddings in the operation introduced by him. He was first led to perform the perineo plastic operation from practical observations of the disease before he ever heard of Fricke's or Geddings' operation.]

I wish to observe that Dr. Savage's illustration of my operation does not give at all a correct view of it as I have practised it for some years past. I remove quite as large a portion of the surface as he does; and the difference between his operation and mine is, that I am content to remove merely the mucous membrane and loose skin of the labia, whilst he removes the vagina itself, which I have not yet had reason to consider necessary.

There are two practical points upon which I lay great stress. 1. The introduction of a catheter into the bladder with a bag attached to it, so as to prevent that viscus ever being filled with the urine, and thereby dragging down the uterus. 2. Not to retain the deep sutures beyond the evening of the second day.

I may mention that, out of all my numerous operations, I can only trace three in which it has not been successful.

1. In the first of these the poor woman is in the last stage of phthisis, and all her tissues are absorbed.

2. The woman went about the trying and laborious work of the wash-tub much too soon, without wearing any bandage or other support.

3. In the case of E. M., I have lately heard from Mr. Buller, of Reading, that the uterus had again pushed its way through the vagina. This is one of the cases in the virgin in which there is a complete inversion of the vagina, which no operation of this kind can relieve.

I also know of one case of prolapsus of the bladder, which has returned again after a second confinement.—*Med. Times and Gazette, March* 13, 1858, *p.* 277.

128.—PLASTIC OPERATIONS FOR PROLAPSUS UTERI.

(Cases under the care of J. HUTCHINSON, Esq., Surgeon to the Metropolitan Free Hospital.)

Sarah M., aged 66, widow, two years under observation, the mother of a large family, had suffered for fourteen years from complete prolapse of the uterus. She had been under several specialists on account of it, but had obtained no permanent relief. It did not appear that there had ever been any actual laceration. The uterus whenever she stood hung between the thighs, and in parts its surface was almost cuticular from friction. It was much enlarged from chronic inflam-

mation, and an ulcer with hardened edges, and the size of a halfpenny, occupied its anterior lip. There was some prolapse of the bladder, and the rectum was also in a slight degree involved. Such being her condition, she had for years been precluded from any active employment, and being of cheerful energetic temperament listened with joyfulness to a proposal to relieve her by operation. Her daughters did all they could to dissuade her from it, thinking her too old; but she persisted in her determination. It should be stated that her vigour was extraordinary for her years. On the left side of the abdomen was a fatty tumour, the size of a fist, for which she had long worn a truss, in the belief that it was a hernia.

The operation was performed on August 17th, 1855. A free paring having been effected, the length of the denuded surfaces being about an inch and a half, the quilled suture was applied very deeply. The skin was united by the interrupted suture. No incision of the sphincter ani was practised. At the same time, while under chloroform, the fatty tumour was excised from the abdominal wall. She rallied well afterwards, and nothing could have been more satisfactory than her progress. The quilled sutures were cut away on the eighth day, while the interrupted one was allowed to remain nearly two weeks. When the latter was removed it was not causing the slightest irritation, and passed through a track in the skin only just as large as needful to admit it, no ulceration whatever having occurred. During the third week the woman began to leave her bed, and at the end of a month all discharge had ceased. The union was complete throughout the whole extent, affording an artificial perinæum so long that it came nearly as far forwards as to the meatus. She did not, however, experience any inconvenience in micturition.

This patient was repeatedly seen during the first six months after the operation, and Mr. Hutchinson has since had frequent opportunities of inquiring of her daughters as to the permanency of her cure. She now lives in Lancashire. The accounts received have been that from the date of the operation to the present time (more than two years) she has never in the least degree suffered from her former complaint. She has ever since enjoyed good health, and been able to go about as much as her years permit, without inducing either pain, prolapse, or discharge. It should be added that on tactile examination three months after the operation it was ascertained that the uterus was as high as the finger could well reach, and that all shrinking of its tissues had vanished, and that the ulcer was soundly treated. This examination was made directly after a long walk to the hospital.

We have related this case at full, as it possesses peculiar interest on account of the age of the patient, the severity of the affection, and the permanency of the cure. It must be remarked that the vulva was closed further forwards than would have been suitable had the patient been either married or of marriageable age. By so doing, a great guarantee as to completeness and permanency of result is

obtained, and in those whom age makes it a matter of indifference it is consequently better to bring the union well forward. Indeed even in younger persons no great risk is encountered, as nothing is easier than to divide the anterior edge of the artificial perinæum, should it be found requisite.

[In the second case, that of a married woman, aged 46, and the mother of a large family, the prolapsus had existed about a year. The perinæum had been lacerated in some one of her labours, but not to any great extent. A small polypus was found growing from the anterior lip of the uterus; this was removed by torsion before the operation was performed. In this case the parts united well, and a year after the operation the prolapsus had not recurred.]

Details of the Operation.—In this case and the preceding one, an exactly similar operation was performed. The flap of mucous membrane removed was much larger than in the method practised by Fricke and some others. Thus the posterior part of the vagina was fully denuded to a distance of at least an inch and a half from the perinæum. Taking the anal commissure as the starting point and measuring an inch and a half upwards into the vagina, then from the same point from an inch to two inches on the margin of each side of the vulva, just at the junction of the skin with the mucous membrane, and lastly connecting the uppermost extremities of these measurements, would accurately map out the portion removed. One of the chief points on which Mr. Baker Brown has so well insisted, is the absolute necessity for making a large flap, instead of merely denuding two narrow slips. By the latter method a thin perinæum is only obtained, while by the former the vagina is much contracted in the lower two inches of its course. Upon attention or neglect of this matter will much depend the success of the case. Even in Mr. Brown's book the plate given does not show the denuded surface as extending sufficiently high on the posterior wall of the vagina.—*Med. Times and Gazette, Nov.* 28, 1857, *p.* 551.

129.—ON COAGULA FORMED IN THE VEINS DURING THE PUERPERAL STATE.

By Dr. Graily Hewitt, Assistant Physician to the Samaritan Free Hospital for Women and Children, Lecturer on Comparative Anatomy at St. Mary's Hospital, &c., London.

[In all those eminently fatal affections to which puerperal females are subject, coagulation of the blood occurs within certain of the veins, and after death appearances are found traceable to this coagulation, and the secondary changes which the coagula have undergone.]

What are the Circumstances preceding, or necessarily connected with the Act of Parturition, which may lead to, or favour the Formation of Coagula within the Veins?

These may be advantageously considered under the following heads:

1. *The State of the Blood itself during Pregnancy.*—It is well known that the blood undergoes changes of a very marked character during pregnancy, and especially towards its termination. The amount of fibrin is increased, the number of the blood-corpuscles undergoes diminution, while the proportion of albumen is also a little less than usual.

It is reasonable to suppose, that blood which contains a higher proportion of *fibrin* than usual will part with a portion of it more readily than under normal circumstances, other conditions favourable to coagulation being present (stasis, &c.), and a nucleus existing round which the fibrin may be deposited; but it does not appear probable that coagulation *en masse* would be likely to occur even in blood highly fibrinous, unless this process were otherwise assisted. Still, if there be a nucleus, such as a small coagulum, formed at any situation, excess of fibrin in the blood would favour its extension. Andral, who with Gavarret, first pointed out the increase of fibrin in the blood in the latter months of pregnancy, suggested that to this circumstance was due the liability of puerperal women to inflammatory affections. With a little alteration of the wording of Andral's suggestion, it may be here repeated in this shape: the hyperinotic state of the blood of pregnant women predisposes to the occurrence of those puerperal affections of which the so-called phlebitis forms a constituent part, in which, in point of fact, coagulation of the blood in the veins is the starting point.

The diminution in the *number of the red corpuscles* is next to be considered. Cazeaux considers that the condition of the blood present at this time resembles that of ordinary chlorosis. Dr. Tyler Smith alludes to the chlorosis of pregnancy constituted by this change in the blood as a pathological, rather than as a physiological event. Scanzoni speaks of chlorosis as being occasionally present under these circumstances. The truth probably is, that what in some cases appears to be a pathological state, is only an extreme physiological one. The question now is, however, has blood which contains a less number of corpuscles than usual any particular tendency to coagulate? Facts are wanting to reply to this inquiry. In reference, however, to the influence of chlorosis generally, a remark of Scanzoni's is interesting. It is to this effect: that in women in whom this chlorotic state was well marked, he had observed a great tendency to become affected with puerperal fever: as before stated, coagulation of the blood is a chief element in most of those affections classed generally under the head of puerperal fever. Another condition of the blood occasionally present in pregnancy—viz., *uræmia*, is considered by some authorities to increase the tendency of adhesion between the particles of fibrin and the vessel wall, and thus to favour coagulation.

2. *The Mechanical Effects of the Pressure of the Enlarged Uterus.*

—During pregnancy, the enlarged uterus forms a tumour, which does not always adapt itself so as to allow of the circulation in the adjacent parts being carried on so uninterruptedly as in the non-parturient state. The pressure of the tumour affects the organs with which it is in contact, and the large venous trunks which are situated immediately behind it. The veins of the rectum are frequently enlarged, giving rise to hemorrhoids, and the veins of the lower extremities frequently become distended and varicose, and the extremities themselves œdematous, from the pressure exercised on the iliac veins. The dark colour of the vagina, due to the turgidity of the veins in that situation, has a like cause. The descent of the diaphragm being somewhat impeded, the right heart is liable to distension, and the passage of the blood to the lungs is interfered with, in consequence of the obstruction to the complete inflation of these organs. These, and many other conditions of an allied character, traceable to disturbance of the circulation, undoubtedly favour stasis of the blood in certain veins, and may, under some circumstances, lead to its coagulation. As pregnancy advances, these effects become more marked in degree. Cases are on record, in which coagulation would seem to have been thus produced in some of the large iliac veins during the latter part of pregnancy, the coagula having afterwards increased in size and extent, and produced serious consequences.

3. *Influence of Pressure during the Act of Parturition.*—It now and then happens that the head of the child rests for a considerable time on the brim of the pelvis, in such a position as to retard the venous current passing from the pelvic organs and lower extremities, and this effect will of course more readily be produced if the head of the child be larger than usual, or the brim of the pelvis be contracted. Stasis of the blood in certain of the veins passing towards the main trunks thus pressed upon is an effect of this pressure, and if it continue for a sufficiently long time coagulation follows. Velpeau appears to have originated the idea that this circumstance was one of the causes which are occasionally efficient in producing the disease called phlegmasia dolens, an affection undoubtedly constituted by an obstructive affection of one of the iliac or femoral veins. The fatal results which frequently follow labours in which the difficulty just alluded to has to be encountered are perhaps too exclusively attributed to the manual and operative measures necessarily had recourse to in the delivery of the child under such circumstances; certain it is that prolonged pressure, such as is occasionally exercised on the vessels behind the uterus, and even on those in the substance of the uterus itself, by the powerful expulsive efforts of this organ, particularly when the liquor amnii has been evacuated, must have a very considerable effect in retarding the circulation in the neighbouring vessels. That the result may be actual coagulation in the vessels subjected to the pressure, and perhaps even injured by it, it is not difficult to conceive.

[The following are among the causes leading to or favouring the formation of the coagula in question]:—

Deficient Contraction of the Uterus, and of the Venous Plexuses near it, after Delivery.—The condition of the pelvic visceral veins at or near the period of parturition is peculiar. Large venous plexuses exist around the uterus, in the broad ligaments, &c., in the non-puerperal state, but these undergo a very considerable increase in size during pregnancy. The unusual functional activity of the uterine system is thus necessarily accompanied by an increased capacity of the veins composing these plexuses. Physiologically, therefore, and under normal conditions, these veins are much larger than usual during pregnancy. But this is not all: the uterus itself, and especially that part of it to which the placenta is attached, is full of large venous sinuses: vessels which in the non-impregnated state of the organ are scarcely visible are now extraordinarily increased in bulk, and the quantity of blood passing through them is very great. While the fœtus is still organically connected with the mother by means of the placenta, the blood passes through these large veins with the same facility as in other parts of the system. After delivery, however, the placental supply is no longer needed; the arteries supplying the uterus with blood shrink, in accordance with certain developmental laws, and nature has provided a means for producing a corresponding diminution in the calibre of the uterine veins and sinuses, in the contraction of the uterus itself. These veins are probably infinitely more dependent on this latter process, as regards their contraction, than on any inherent tendency of the vessels themselves to contract. As is well known, contraction of the uterus does not always occur so soon after expulsion of the fœtus as is desirable; its involution is delayed. The blood contained in the large sinuses or veins then stagnates (supposing hemorrhage does not take place), and coagulation, or a tendency to such coagulation, of the contents of the vessels is produced. The extra-uterine venous plexuses normally undergo, after delivery, a great diminution in their size, according to Virchow; and, if this contraction be delayed, or do not take place, a tendency to coagulation is thus also produced.

In reference to the influence of imperfect contraction of the uterus, on coagulation, several obstetricians have remarked on the frequency with which puerperal affections of veins occur in cases of retarded involution of the uterus.

The Existence of the Normal "Physiological" Coagula, which after Delivery close up the Orifices of the Uterine Veins at the Seat of Placental Attachment.—The separation of the placenta from the uterus necessarily involves a solution of continuity in the venous canals, up to that time occupied in returning the blood to the mother from the maternal portions of the placenta. The necessary closure of the divided vessels is accomplished chiefly by the agency of the contraction of the uterus itself, the arrangement of the vessels being

such as to favour this process, when the size of the uterus diminishes. But the contents of the vessels have also a share in the perfecting of the closure in question, the blood within them coagulating and forming a plug by which the occlusion is completed. The formation of such coagula within the veins at this position is favoured by two circumstances: there is stasis of the blood within the veins, and, in many cases, exposure of the same to the action of the air. It will readily be seen that the size of the coagula occluding the veins, and the degree of contraction of the uterus, must have an inverse ratio the one to the other. If the contraction be delayed, or be from any cause imperfect, the calibre of the veins is not reduced to the same extent, and the coagula necessarily formed are of larger dimensions than under the opposite combination of circumstances; they will also extend farther towards the heart. Again, the vessels thus unnaturally open are also more liable to be affected by any morbid action which may be going on in the mucous membrane with which they are then directly connected. The formation of a limited coagulum, plug, or thrombus within the uterine veins at the point of attachment of the placenta after delivery, would thus seem to be a usual physiological event. Virchow considers that the existence of these "physiological" coagula have no small share in forming the extensive and marked coagulation in the large veins of the pelvis and parts adjacent to the uterus, so frequently met with after death from puerperal causes. The larger the coagula are in the first instance, the greater will be their effect in producing subsequent coagulation in the neighbouring veins. Imperfect uterine contraction obviously exercises an unfavourable influence in a like direction.

The causes mentioned under the last two heads are, for obvious reasons, often combined. They are probably the most important "moments" in the production of coagulation in the veins during the puerperal state, to which the others mentioned occasionally act as subsidiary.

The next circumstance to be attended to as capable of playing an important part in the process now under consideration is, *the occurrence of hemorrhage from the uterus after parturition.* Post-partum hemorrhage, depending, as it for the most part does, on deficient contraction of the uterus, tends of itself to relax that organ, and thus to interfere with that perfect subsequent involution of the uterus so essential to the safety of the patient. Hemorrhage is thus not only an effect, but a cause of deficient uterine contraction. In cases of post-partum hemorrhage, actively and successfully treated, the uterus is made to contract, and coagula of more than average size have no time to form or space to form in; but when this is not the case, and the treatment is only partially successful, the uterus contracting a little, and again becoming distended, these are just the conditions likely to favour the formation of large coagula in the veins in the first place, and their increase in size and extent subsequently. When the

hemorrhage ceases, a coagulum forms at the orifice of the vessel. Now, when the loss of blood has been excessive, the clot so formed will, from its looseness and want of consistence, less completely close the vessel than when the clot has been formed from blood having the normal proportion of fibrin and blood corpuscles, and it becomes a question whether this imperfect closure of the orifice in question may not subsequently allow of the admixture with the circulating fluid of those deleterious and septic matters which are occasionally formed on the internal surface of the uterus after delivery. This leads us to consider—

Certain conditions of the internal surface of the uterus following on parturition, as influencing the formation of coagula. Mechanical injury of the uterus owing to the use of instruments, &c., may be followed by inflammatory action in the uterine substance. This inflammation may pass away speedily, leaving the bloodvessels of the uterus comparatively little implicated. The internal surface of the uterus may take on an unhealthy kind of inflammation in consequence of such mechanical injury, or independently of it. The veins of the uterus corresponding to the seat of attachment of the placenta become under such circumstances also affected, the morbid action passing directly from the surface of the uterus to the interior of the veins. The precise kind of action which is thus induced in the veins of the uterus it is difficult to define. It is sufficient for the present purpose to state that coagulation of the blood in the veins leading from the affected surface is found to be present, and to be *one* of the effects produced in such cases, and it is probable, on certain experimental data, that such coagulation is often a primary effect of the action of the inflammatory products on the blood within these veins. —*Lancet, Jan.* 9, *and Feb.* 20, 1858, *pp.* 33, 187.

130.—OVARIAN DROPSY AND INJECTION OF IODINE.

By I. Baker Brown, Esq.

The following case has many points of great interest. Miss C—, aged 26, of a delicate constitution, suddenly discovered an enlargement of the left side of the abdomen, which proved to be ovarian dropsy, and the disease so rapidly progressed that in the short space of six months it became absolutely necessary to relieve her by tapping, and about sixteen pints of highly albuminous dark fluid were drawn off. In six weeks the operation required repetition. At the end of seven weeks more the distension and inconvenience became so great that Mr. Brown was requested to see her. He then heard the history just given, as also that she had consulted a few weeks before a celebrated London physician, especially with a view to inquire of him as to the futility of injecting the cyst with iodine. This gentleman in no measured terms condemned any interference beyond tapping, and

especially the injection of iodine, stating that it was almost uniformly fatal. I found the patient extremely emaciated, with a quick irritable pulse, and a painfully distended abdomen. Upon being asked whether I recommended iodine, I replied that I considered the patient too seriously diseased to permit the hope of her being cured by any procedure, but that I did not look upon the injection of iodine as in itself likely to increase the danger. Having submitted fully and frankly the dangers to be apprehended from every kind of interference, including even tapping, I left it for the patient and friends themselves to decide. In 24 hours the patient elected to try the iodine. On the following day, therefore, Nov. 13th, I injected ℥v. of the strong tincture of the Edinb. Pharm., and allowed it to remain within the cyst. The patient was less affected than usual by the shock of the iodine and its elimination. Although iodine could be detected in the ejecta from the stomach, it could not in any appreciable degree either in the urine or saliva. Under the free administration of stimulants the patient was convalescent in four days, and in ten so much better in general health, as to be drawn out in a bath chair for half an hour. Although there is no doubt there will be some return of the fluid, still it is evident to all that the health has been improved and not impaired by the iodine injection. This case appears to me to be instructive on several grounds, and is an additional case in my own hands where the operation was not fatal. (I have not yet had one fatal case.) It therefore controverts the wholesale condemnation of the plan. The improvement of her general health fully warranted its trial. The absence of elimination through the kidneys is also quite new to me. Many cases which I have already recorded, one of which was operated on nearly three years since, have continued well and free from disease. I therefore infer that the operation is worthy the most serious consideration of the Profession, and would make the following practical deductions from my experience. 1st. That the operation, if carefully performed, is not so dangerous as has been supposed. 2nd. That it has in many cases, both in France and in this country, proved eminently successful. 3rd. That in the severe forms of multilocular ovarian dropsy, one or more of the cysts may be destroyed by the iodine, and so retard the progress of disease. 4th. That where it does not cure, yet it very much improves the general health.—*Med. Times and Gazette, Dec.* 5, 1857, *p.* 587.

131.—ON SECONDARY AFFECTIONS OF THE JOINTS IN PUERPERAL WOMEN.

By William Coulson, Esq., Surgeon to and Lecturer on Surgery at St. Mary's Hospital, and Consulting Surgeon to the City of London Lying-in Hospital.

Puerperal women are occasionally attacked by a severe form of disease attended by low fever, with effusion of pus into the joints, and

almost always terminating in death. Various opinions are entertained respecting the nature and causes of this disease. My object in the following remarks is to show that it is connected with pyæmia.

The local affection occurs under two circumstances; viz., after delivery, at the full period of gestation: or after abortion in the earlier months. It is important to include the latter kind of cases, which have not been sufficiently noticed, as they throw great light on the true nature of the disease, and dispose of the theory which would attribute the secondary affections to child-bed fever. The articular disease, as I shall presently show, is merely one of the effects of pyæmia; but it receives certain modifications from the puerperal condition with which it is associated. Even in puerperal women these secondary joint affections may occur under several states which may be distinguished from each other. They are most commonly developed during the course of puerperal fever, from the third to the sixth day of the complaint. In other cases, they occur after convalescence from an attack of puerperal fever. Lastly, in some other cases they set in after parturition, without the patient having presented any symptoms of puerperal fever.

Although the articular affections are essentially the same under these different circumstances, it is useful to distinguish these circumstances, as they modify the general conditions which precede or accompany the local disease. Thus, when the symptoms of purulent infection of the blood are mixed up with those of true puerperal fever, we have a complex malady which has puzzled some of our best accoucheurs, and which, indeed, it would be impossible to understand, if the same affection did not sometimes occur in puerperal women without puerperal fever.

When the articular affection occurs during the course of puerperal fever, the following train of events is generally observed. For the first three or four days, the ordinary signs of puerperal fever are alone recognised; then some symptoms of phlebitis may present themselves; or these symptoms may be so slight as to be overlooked. They are soon followed by a change in the condition of the patient. Severe rigors often usher in this change; the fever increases; the countenance is anxious and sallow; the respiration becomes hurried; there is irregular delirium; and the patient sinks.

In these cases, there are two dangerous maladies; viz., puerperal fever and purulent infection, running their course at the same time; and it is not to be wondered at, if the general condition of the patient presents an anomalous appearance, or if it be rendered obscure by the predominance of one set of symptoms over the other.

In another set of cases, this obscurity does not exist. The patient has completely recovered from an attack of puerperal fever, or has not had any attack of that complaint; all the dangers of the puerperal state having apparently passed over. She goes on well for the first week or two; there is no fever: no abdominal pain; no apparent

danger of any kind. Suddenly, a severe rigor sets in; this is followed by febrile symptoms, small quick pulse, &c.; or the attack may commence with local symptoms, the general disturbance being scarcely perceptible. These latter cases are very remarkable, and not long ago were mistaken for rheumatism.

The disease, with its local effects and constitutional symptoms, may occur after abortion in the early months. Here there are no symptoms of puerperal fever, properly so called: but there may be some slight symptoms of uterine phlebitis. These are often chronic and obscure cases; yet they proceed and terminate like the former series.

The secondary joint affections are the same under all these different circumstances. They may be either purulent or non-purulent; articular or periarticular; acute or chronic. These different conditions are found to exist in various cases; but the most common form of attack is acute, of a purulent nature, and occupies the interior of the joint. At other times, though extremely acute, the attack is non-purulent, and confined to the exterior of the joint; while, in several cases, there is pus in the cavity of the joint, without any lesion of the articular tissues.

It is also worthy of remark, that in several cases some of the joints are attacked by purulent inflammation, while other joints in the same subject suffer from simple inflammation with effusion of serum.

The period at which the articular affection sets in is various. In a few cases, it has commenced on the second day after delivery; in many other cases, it does not appear until a few days before death, viz.. from the twenty-third to the twenty-fifth day. Generally, however, the joints are attacked between the third and fourteenth days. The knee-joint is most frequently the seat of disease. I have found that it is attacked in one-third of the cases in which the joints have suffered; next comes the wrist-joint; then the ankle, the shoulder, elbow, hip; and, lastly, the smaller joints. In a few cases, the purulent effusion has been confined to the symphysis pubis; but I am inclined to think, from the history of these rare cases, that the suppuration of the pubic joint was primary, not secondary—the inflammatory action having extended from the cellular tissue of the pelvis.

The duration of the joint-disease necessarily depends on the duration of the primary affection with which it is connected as an effect. It is not often prolonged beyond a week, but it may last from one to three weeks. In chronic cases the duration may extend to three months. I have published a remarkable case, where death took place on the sixty-fifth day after delivery, and on the fifty-fifth after the attack. Mr. Arnott also mentions a case, which was prolonged for forty-four days; but no *post-mortem* appearances are given.

The local articular symptoms, and the changes discovered after death, present several varieties. In some cases there are no local signs of articular disease; even pain about the joint is absent. After death the cavity contains some pus; the articular tissues are quite

healthy. These are exceptional cases. It is very rare not to find some one joint visibly affected, although the rest may have been the seat of passive suppuration.

The local disease commonly appears with the signs of synovial inflammation. The attack is always of an acute nature, commencing with pain more or less severe, which is quickly followed by swelling. The colour of the skin remains unchanged; and the swelling is evidently caused by effusion of fluid within or round the joint. When the articular disease sets in, as is often the case only a few days before death, it may continue with little change to the end; in other cases, the pain and tumefaction disappear altogether before death; or they may leave one joint to attack another.

It is, however, important to remark that, although the pain and swelling may somewhat subside, the disease never passes suddenly from one joint to another, as occurs in true rheumatism. Several large joints may suffer in succession; but, after death, we always find some lesions in or around the joint first attacked. In other cases some change in the colour of the skin is found, superadded to the pain and swelling. The skin may be hot and red; it is often of a dusky red colour, especially about the knuckles and wrists. In many of these cases the affection is probably confined to the periarticular tissues; whereas, in ordinary diseases of the joints, the matter which surrounds the joint is derived from its cavity; in secondary diseases the pus hardly ever comes from the interior of the joint. I am acquainted with two cases only in which perforation of the cavity of the joint had taken place. These periarticular effusions, then, may be of two kinds, Sometimes the effusion is serous, and subsides to a considerable degree before death; or pus has been effused into the cellular tissue outside the joint, either with or without symptoms of local inflammation.

I am quite unable to determine the circumstances which give rise to these differences, or to explain why the effusion is purulent in some cases, serous in others; why it takes place now *in* the joint, at another time *outside* it. Moreover, the kind and seat of the effusion bear no relation to the gravity of the case, or to the intensity of the local symptoms.

The joint-affections are frequently accompanied by abscesses in the muscles of the legs and arms, preceded by pain and attended by doughy swellings. When these occur in puerperal women they should always excite attention, for they are too often the forerunner of purulent infection of the blood. The changes discovered after death are purulent effusion into the articular cavity without any alteration of tissue; frequently signs of synovial inflammation with erosion and ulceration of the cartilages; more frequently still purulent or serous infiltrations outside the joints, with abscesses in the neighbouring muscles. In no case have the bones been found diseased; in no case, likewise, are the lesions confined to the joints; yet in a few cases the joints and intermuscular tissue have only been affected.

The other lesions are those of purulent infection: viz., secondary deposits in the lungs, liver, &c. The brain has not been found affected, as far as I am aware. Pus is always found either in the veins or lymphatics of the uterus; or there is primary abscess in the walls of the uterus, in the cellular tissue of the pelvis, in the symphysis pubis, or elsewhere.

Practitioners are now agreed that the puerperal disease of the joints depends on blood-poisoning. The only question on which difference of opinion exists is, as to the nature of the poison. Is it pus? Is it some morbid secretion or putrid element introduced into the blood? My own opinion is that these secondary joint affections, as well as many others, are caused by purulent poisoning of the blood.

1. In the large majority of cases purulent phlebitis of the parts originally affected has been observed after death. This holds good especially for cases which occur in connection with puerperal fever. The careful observations of M. Tonellé, at the Lying-in-Hospital in Paris, place the fact beyond doubt, and show that, although these secondary joint-affections and the general symptoms which accompany them never take place without having been preceded by primary suppuration, purulent phlebitis, and primary suppuration of the cellular tissue do not necessarily give rise to them. The pus poisoning and secondary deposits are an occasional, but not a constant effect of the phlebitis and primary abscesses. Thus, in two hundred and twenty-two *post-mortem* examinations of patients who died from puerperal fever, M. Tonellé found suppuration of the veins or lymphatics of the uterus in one hundred and thirty-four cases; yet of these, ten cases only furnished examples of secondary articular disease.

2. In many cases where pus has not been found in the uterine veins or lymphatics, it has been found in other tissues; and the very few cases related where no pus was found show either that the *post-mortem* examinations were imperfectly conducted, or that the temporary secretion of pus might have been fairly inferred from the symptoms during life.

3. The presence of vitiated and putrid secretions in the uterus does not account for the disease. It is not produced by retention of the placenta after abortion. It does not occur (unless phlebitis exists) in the form of puerperal fever, which is characterised by putrescence and softening of the uterus. It is not produced by the ingestion of putrid animal substances into the stomach.

4. The disease occasionally occurs in females without any of the accompanying circumstances of the puerperal state. Yet in its course, symptoms, and termination, it does not differ from the form which occasionally accompanies puerperal fever, the only modifications being those which arise from the presence or absence of the puerperal fever itself.

I do not deny the pernicious influence of vitiated secretions; but I maintain that all observation and analogy establish the doctrine that,

unless these secretions excite purulent phlebitis, or give rise to primary deposits of pus in some of the tissues, they are not followed by the train of symptoms known under the name of pyæmia.—*British Medical Journal, March* 6, 1858, *p.* 188.

132.—ILLUSTRATIONS OF THE RECIPROCAL SYMPATHIES BETWEEN THE UTERUS AND BLADDER IN WOMEN.

By Dr. W. F. Montgomery.

It is familiar to us all, that in the human female, there is an intimate reciprocal sympathy between the uterus and bladder, and other parts of the urinary apparatus; so that, under a variety of circumstances, when the former organ is the seat of any anomalous action, or brought into a state of exalted sensibility, whether from natural or morbid causes, the latter is not only liable, but very apt to sympathise, and suffer correspondingly.

This is constantly exemplified in the increased urinary irritation so often accompaning ordinary healthy menstruation, and still more remarkably, when the latter function happens to be painfully performed. Again, in early pregnancy, the same thing is observed; and the remark is trite, that morbid actions in the uterus, whether benign or otherwise, often have the earliest announcement of their invasion, in symptoms of disturbance first noticed in the functions of the bladder.

Thus, congestion or slight ulceration of the cervix uteri, and still more strikingly, malignant affections of that part, frequently excite, in the first instance, in the patient's mind, only apprehensions of gravel, or some vesical disease, for which alone she is induced to seek advice; but woe betide us, in this and many other circumstances, if we let ourselves be beguiled into the belief that because a particular organ or locality is affected with certain anomalous symptoms, it is therefore the seat of some disease, of which these symptoms are to be taken as indications; and so prescribe. Could we, for instance, expect to cure the itching of the nose and angle of the eye which accompanies the presence of intestinal worms, by applications to the Schneiderian, or conjunctival membrane?

Mrs. C. had, for a long time, intense, intolerable, distracting itching of the perineum and anus, which really rendered her life miserable, and for which she had consulted many, and used a multiplicity of remedies; many of them, no doubt, very appropriate for *pruritus*, but *not for her*. When she came under my care, I also, at first, adopted the wrong course; I prescribed *for the symptom*, and *not for its cause*. But fortunately, after seeing her a few times, something led me to suspect the existence of intestinal worms. I gave her a dose of the *Kousso*, which caused the expulsion of some very large lumbrici, and all her troubles were forthwith at an end.

Mrs. M. consulted me for pruritus of the pudendum, from which she suffered to such a degree, and it was accompanied with other symptoms of so distressing a kind, that she declared she loathed herself, and felt her life an intolerable burden to her. She had used gallons of lotions, and all sorts of ointments, without the slightest relief. Examination showed an intense congestion of the cervix uteri; this was made the object of treatment, and on its removal, the pruritus and all its miserable concomitants totally ceased.

I have already called the consent between the uterus and bladder a reciprocal sympathy, because it equally acts in the reverse direction, irritations of the bladder being frequently found to influence and disturb the functions of the uterus—a fact which should not be forgotten in practice, and especially in the treatment of the diseases of pregnancy, when the administration of the more irritating diuretics should be avoided, lest they should excite contraction of the fibres of the uterus, and so induce premature expulsion of its contents. That they are capable of so doing is, unfortunately, popularly known, and advantage is taken of such knowledge for base and wicked purposes.

And again, we must remember that vesical disturbances may produce a group of symptoms so closely resembling those arising from disease of the uterus, as to be mistaken for them.

Several years ago, there occurred in this city a case forcibly illustrative of this, and which excited no small sensation. The wife of a general officer, at that time holding the highest military command in this country, began to complain of distressing symptoms, having all the characters of those produced by uterine disease. Such was her own conviction, and on her consulting an accoucheur, then in large and high practice, her worst fears were confirmed: he pronounced the affection to be cancer uteri, and could only promise palliation. But she had many anxious friends, whose happy privilege it is always to hope for the best, and some of them urged upon her the necessity of having another opinion; to this she at last consented, and the gentleman called in, pronounced the case to be one of stone in the bladder; the stone was extracted, and the lady passed at once from a state of pain and misery, to one of comfort and happiness.

A few years since, a patient came to consult me, stating that, to gratify her friends, she had come to town for my advice, although quite aware that she could not be cured. She also handed me a written statement of her case, which set forth that she had had seven labours of terrible severity, owing to contracted pelvis, always requiring instrumental delivery; that for some months she had exhibited unequivocal symptoms of the existence of cancer uteri; and I confess, that from this account, and the woman's own description of her symptoms, I thought there was little room for doubt as to the nature of her malady. However, I, of course, gave no opinion, and suspended my judgment until I should have instituted a careful examination; on doing so, I could discover no disease of the uterus, but the neck of

the bladder was distended, and felt very hard. I passed a sound into it, which at once struck against a stone of considerable size. Mr. Fleming now saw the case with me, the stone was removed, and the woman soon returned home well, and continued so.

It is not my intention to enter into a lengthened exposition of all the details of this part of our subject, but only to ask attention for a few minutes, while I review, as briefly as may be, some forms of disturbance of the functions of the bladder occurring at the time of labour. And I may just premise, that considering the frequency with which we witness such interchange of sympathies as we have been hitherto discussing, and their production, in many instances, from comparatively unimportant causes, we would anticipate from the close relation of juxtaposition between the uterus and bladder, and from the direct exposure of the latter organs to the powerful mechanical efforts of the uterus, as well as from the marvellous anatomical and physiological changes taking place in the latter, during pregnancy and parturition, and immediately after, we would, I say, be led to expect that the innervation and powers of the bladder would be likely to exhibit still more marked and decided evidences of impairment, or some other abnormal condition, in the puerperal woman; and accordingly, in practice, we find that there are, at least, four forms of disturbance of the functions of the bladder, which are not unfrequently produced by parturition, even when that process is easy and natural:

1st. Irritability, causing an inconveniently frequent desire to discharge its contents; and this with a certain amount of pain.

2nd. Loss of expulsive power; the natural sensibility being unaffected.

3rd. Total loss of the natural sensibility, or irritability, which prompts to the evacuation of the contents of the organ.

4th. A peculiar form of hysterical retention.

The first two of these states require little more than to be glanced at; the third and fourth demand a somewhat more particular consideration.

1st. The irritability of the bladder which succeeds labour, almost always yields readily to soothing measures, such as warm anodyne fomentations, a linseed meal poultice, opiate and camphorated embrocations, an opiate suppository in the rectum, or the administration of the mist. camphoræ c. magnesiâ, with tincture of hyoscyamus and syrup of poppy. Should there be reason for suspecting inflammation, it may be necessary to apply a few leeches, and use other appropriate remedies; but this is rarely the case.

2nd. When the expulsive power is in abeyance, but the natural sensitive irritability remains unimpaired, the desire to evacuate the contents of the organ becomes distressingly urgent, in proportion to the amount of accumulation within it.

This condition is sometimes produced by pressure from the uterus happening to be larger or lower than usual, perhaps displaced, or from the presence of an uterine tumour, in which case, raising up the

obstacle may remove all difficulty. Sometimes, merely permitting the patient to assume the sitting position may suffice. Should these plans not succeed, the introduction of the catheter gives the desired relief.

3rd. Again, there is the third and most important variety, in which there is no irritability, not even the natural desire to evacuate the urine, nor sensation, nor consciousness of requiring to do so, although a large accumulation is taking place, which will soon produce symptoms, not alone very distressing in themselves, but, what is worse, conditions which may lead us greatly astray, and excite groundless apprehensions of great impending danger; and it will not lighten our discomfort, should it turn out. as has often happened, that the patient owes all her annoyance to our inadvertence, or to the carelessness of the nurse-tender; for if we are careful in making the requisite inquiries, and give the proper directions to the nurse, and she attend to them, the accident, of which I am about to speak, *could not happen*.

The first time I remember to have had my attention drawn to this condition was in the year 1832, and in the case of an esteemed medical friend's wife, who was delivered of her first child, after a natural labour of fifteen hours, presenting nothing unusual, if we except the most tremendous rigor I ever witnessed, which occurred shortly after delivery, and was so violent that I really thought it must have ended in convulsions; but simple means removed it, and she went on well. Before leaving her, I cautioned the nurse to encourage the lady to pass water in the course of the evening, as she had not done so for several hours; this, however, was neglected, as the lady neither expressed nor felt any want, and, at my next visit, I found my patient very feverish, with headache; a pulse above 120; the belly tumid and tender to the touch. Before proceeding to introduce the catheter, of which she had a great horror, I advised her trying to pass water, which she did, to the amount of at least two quarts, with instant relief to all the symptoms. Her convalescence was uninterrupted.

At a time when there were occurring several cases of puerperal fever through town, a medical friend called on me to request that I would accompany him to visit a patient of his, who had been confined two days previously, after a severe and protracted labour. She was not going on well, and he thought he had to deal with a case of the above-mentioned formidable disease, as his patient was very feverish, had most distressing headache, a rapid pulse, with abdominal pain, swelling and tenderness. On seeing her, I thought the presence of a large quantity of fluid was beyond doubt; a catheter was introduced, and an enormous accumulation of urine withdrawn, with immediate and decided relief to all the symptoms. It was then ascertained, that she had not passed water since her confinement, nor for many hours before it; she recovered perfectly.

The next case occurred to me under circumstances which inves-

it with a very unusual interest, and caused it to make a great impression on me. I happened to be staying for a few days in a very fashionable watering-place in England, where there resided a family of great wealth and consideration in society; the eldest son of which had married a lady of large fortune and high connection. This lady had recently been confined of her first child, and, as may be readily supposed, the attendance upon her had been a matter of warm ambition among the local practitioners; and the gentleman who carried off the prize was, I fancy, more envied than congratulated by his confreres.

I met this gentleman accidentally in society, and the following morning he called on me in a state of painful agitation and distress; "I am," he said, "in a terrible dilemma, and fear I am a ruined man." He then proceeded to tell me that he had attended Mrs. —— three days before; that she had rather a severe labour; and that at the end of thirty hours, finding the labour not likely to terminate by the natural efforts, the head having remained stationary for several hours low down in the pelvis, and pressed strongly against its floor, he had delivered her with the forceps, without, as he assured me, any difficulty whatever. All then seemed well; but next day the lady was uncomfortable, restless, feverish, and rather larger than she ought to be, and this state went on increasing until the third or fourth day, when, to his horror, the urine began to trickle away incessantly, and a slough, about the size of a sixpence, was discharged from the vagina. He at once, naturally enough, concluded that a vesical fistula was established; and I, taking his account as my guide, thought there was but little doubt that his worst apprehensions would be realised.

At his urgent request, I accompanied him to visit the lady, whom I found with a hot skin, much headache, a very quick pulse, a very distended abdomen, which was moreover so tender that she could hardly bear it to be touched; but I distinctly ascertained the presence of fluid. On examining *per vaginam*, I could not detect by the finger any breach of surface along the anterior wall, or back of the bladder, and I suggested to Mr. —— that it would be well to pass a catheter into the bladder, which, at his request, I did, and gave exit to a quantity of urine sufficient nearly to fill an ordinary wash-hand basin. Subsidence of the abdominal swelling immediately took place, the lady felt inexpressible relief, and from this day went on well.

The truth was, the bladder had been forgotten by all the parties concerned; and the patient had never passed water since her confinement, nor felt a desire to do so; until at last the bladder become so distended, that the resistance at its neck was overcome, and the urine leaked out at the front as fast as it was pumped in from the ureters at the back; and it so happened that, just as this began, a small slough had separated from the mucous membrane of the posterior wall of the vagina, which had been strongly pressed on by the head for several hours.

4th. Another state, not exactly ranging under any of the former kinds, seems to be of a purely nervous or hysterical character, and mixed up with a certain amount of *mauvaise honte.* The patient has a decided desire to pass water, and suffers distress from its retention; but has, at the same time, the greatest reluctance to make the necessary effort, and *positively refuses to try, if any one, even the nurse-tender, is present*, declaring that it would be impossible for her to succeed.

Under these circumstances, suitable arrangements should be made by the nurse, and the patient then left by herself, for a time, during which she may succeed in accomplishing the desired object; if she does not, some anti-nervous medicine should be given, with strong assurance of its potency in removing such difficulties; let her try again during our absence, and if she has not succeeded when we come to pay our next visit, we must declare that longer delay would be unsafe, that we will wait a little while in the drawing-room, and if she does not then succeed, we must draw off the water before we leave the house; this generally ensures success.

In many of these cases they do not succeed, because they do not make the proper effort; and this, I believe, is oftentimes, simply because they cannot, and not always because they *do not choose*; this state of nervous inability ought to meet with much tender consideration. I may observe here. that I have never met with this peculiar form of affection, except in the higher grades of society, and almost always in women of a highly sensitive nervous temperament, some of them having experienced a similar difficulty before marriage, and also under ordinary circumstances, distinct from pregnancy.

Now, is this state which I have just been attempting to describe, analogous to, or identical with another, which I have a few times met with in practice, and which may be thus described?—A lady in perfect health, retires to her bedroom for the night, and before lying down to rest, attempts to make water, and finds she cannot—she is much surprised—goes to bed, and perhaps falls asleep; in the morning, she is in great distress, but still unable to empty the bladder, and now her pain is so great that she is compelled to seek for assistance—the catheter is introduced, and all her trouble is at an end; or, perhaps, for several days, its use continues to be required, and then all goes on as well as ever; but, in either case, no circumstance of general ill health, or local derangement or displacement, can be discovered. The woman, in fact, is otherwise quite well.

The year before last a married lady of a highly nervous temperament, so affected, drove six miles into town to my house, in great torture: I drew off the water, and she required no further assistance.

Last year, I was urgently summoned to see an equally nervous maiden lady similarly situated; on laying my hand on the abdomen, I felt a tumour, as large as a melon, and as hard as a cricket-ball; and *per vaginam*, it really, at first, suggested the idea of a fibrous tumour

of the uterus, this organ being quite displaced. I introduced the catheter, drew off a large accumulation of urine, and the abdominal tumour—which was nothing more than the distended bladder—at once disappeared. The feature in this case which particularly arrested my attention was, the extraordinary hardness and the distinct outline of the abdominal tumour, which would readily have caused it to be mistaken for a solid morbid growth.

I may here observe, that in the well-known case of the virgin mock prophetess, Joanna Southcott, there was felt, by competent judges, a circumscribed tumour in the abdomen, which was supposed to be the gravid uterus. Dr. Reece, in his published history of the case, says—"In that part occupied by the womb, there was a firm circumscribed tumour as large as a man's head, bearing the shape of the womb; I have no doubt of its being an enlargement of that organ." But when she died, no tumour existed, and that which was felt during life was attributed to the prophetess having learned to retain the urine until the bladder became considerably distended; which seems highly probable.

In my case last related, it was necessary to relieve the lady every day for a week; when she perfectly regained the power of micturition. I may just mention, that the remedy which seemed to remove her inability was the ergot of rye; did it do so by stimulating the fibres of the uterus in the first instance, and then, by consent, those of the bladder? Perhaps so, but as the same agent has produced a similar effect in men, a direct influence may be equally admitted.—*Dublin Hospital Gazette.—Edinb. Med. Journal, March* 1858, *p.* 841.

133.—*Quinine in the Salivation of Pregnancy.*—Dr. MAUTHNER relates that he has found sulphate of quinine, given in two grain doses, prove completely efficacious in cases in which various other means had been tried without success.—*Schmidt's Jahrb.—Med. Times and Gazette, Nov.* 14, 1857, *p.* 511.

134.—THE PHYSIOLOGY, PATHOLOGY, AND THERAPEUTICS OF THE MOTOR FUNCTIONS OF THE UTERUS.

By Dr. H. HANNOTTE VERNON, Physician to the Great Northern Hospital; formerly Resident-Accoucheur to St. Mary's Hospital.

[Strychnia appears to be quite new as an agent for exciting the motor functions of the uterus. The following are the circumstances which first led the author to employ it:—]

I was summoned one evening to attend E. H., an out-patient of the maternity department of St. Mary's Hospital. She was about thirty years of age, and the mother of three children; her previous labours had all been slow. Her temperament was leucophlegmatic; com-

plexion fair; muscular system flabby; pulse slow, very small and compressible. A more flabby atonic person I hardly ever saw. On examination per vaginam, the passages were found to be cool, moist, and very relaxed; the os uteri was already somewhat dilated, soft, thin, and *dilatable*. The presentation was natural. The pains came on about every five minutes, and the bag of membranes, which was unbroken, became somewhat tense at each contraction; but the uterus acted very inefficiently; each pain was not only very weak but very short. After waiting about an hour, I returned home, as no progress whatever was made. In the course of the night a messenger called me to her again, and I found things exactly in *statu quo*. As no progress was made during an hours' patient expectancy, I went home again. Two or three visits were made the next day, and still there was no advance whatever; no alteration in the character of the uterine contractions; no change in the position of the fœtal head, or in the condition of the maternal passages. My patient had pains now and then; she alternately dozed, ate and drank, and appeared only a little fretted (as much as her lethargic nature would permit) at the duration of her labour. About 10 P.M., I made a visit; and, while sitting at the bedside cogitating upon the disagreeable prospect of another night's devotion to the goddess Lucina, and feeling rather in a "rusticus expectat, dum defluat amnis" state of mind, I ran over to myself the different ways of exciting the uterus to act, and the *modus operandi* of the agents used for that purpose. Nearly all the means which occurred to me, except ergot of rye, resolved themselves into eccentric irritations of the spinal nerves. The ergot appeared to me inadmissible, as the os uteri was not so far dilated that I could hope to procure delivery within the short limit of time which I thought imposed by regard for the safety of the fœtus; and I did not like to alter the labour from the natural by rupturing the membranes. But what if, instead of employing eccentric spinal irritation, I could exalt the polarity of the spinal cord itself, and leave the natural excitor stimuli to their usual mode of operation? It was clearly a case of diminished irritability of the nervous centres, and particularly of the spinal cord. The next question which presented itself was—what agents do we possess capable of exalting the polarity of the spinal cord? The readiest answer to this was—strychnia. Persuaded that I had found the key to my difficulty, I went home and procured a solution of strychnia in very dilute hydrochloric acid, of the strength of one grain to the fluid ounce. On returning to the case I administered one sixteenth of a grain of strychnia in half a wineglassful of water. In a little more than ten minutes the pains increased in frequency and force; but in fifteen minutes more they subsided again somewhat. The same dose was repeated, and in a short time the uterine contractions again became exacerbated and hopefully persistent; the fœtal head, too, was lower in the pelvis. Nearly forty minutes had now elapsed since the first dose. A third was now given

to the extent of one-fifth of a grain, and in about fifteen minutes more the membranes were ruptured in consequence of the severity of the pains. The labour was terminated in less than an hour and ten minutes from the exhibition of the first dose of the strychnia; the uterus contracted firmly after the expulsion of the placenta, which took place spontaneously; there were no excessive after-pains; not a single bad symptom appeared; and both mother and child did extremely well. The whole amount of strychnia given was seven twenty-fourths of a grain. The result was very gratifying, because here the patient had been at a stand-still for nearly thirty hours; there was no advance whatever in that time, and no promise of advance; she might have travailed for thirty hours more if nothing had been done. It was still more satisfactory, because I felt that, by the application of the known physiological action of the drug, I had procured, with perfect safety, a new therapeutical result. By the application of physiological knowledge the boundaries of obstetric art had been somewhat extended.

Since the above case occurred I have used strychnia in eight cases; care has always been taken to select cases of *pure atony*. On no occasion have I ever resorted to strychnia in order to overcome an obstacle, however small. Believing that oxytocics are *never* permissible, except to promote uterine contraction when it is below the natural standard of force and frequency, I never use them except for the remedy of such conditions. Cases of atony, moreover, vary very much in their nature; inertia of the uterus from fatigue ought to be met by rest and diffusible stimulants; from mental preoccupation, by diversion or anæsthesia, and so on. It is by no means justifiable to lash the uterus in every case of inertia into action, by direct stimulation of either the uterine ganglia or the spinal cord.

For these reasons the number of cases in which I have felt it proper to use a remedy of so powerful and definite a nature as strychnia has been small. The result of nine cases of *pure inertia uteri* has been as follows:—

1. In every case the mother has done well.
2. In every case the child has been born alive; and has, to the best of my knowledge, suffered nothing from the exhibition of the drug.
3. In one case only have the uterine contractions been at all immoderate, and in that instance a glass of spirits was given to the patient at her own urgent request: so that all the exacerbation of uterine contraction was not attributable to the strychnia.
4. The dose given has ranged from one-eighth of a grain to one-third variously divided.
5. The pains have been visibly augmented in force, frequency, and duration, within periods ranging from eight to twenty minutes.

6. Labour has been accomplished within one hour and a half in every case from the first dose given. The longest was one hour and twenty-two minutes. In three cases the drug was given in strong tea, without the knowledge of the patient.

It is not pretended that these nine cases are conclusive as to the value of strychnia in obstetrics. It may yet remain to discover that there are cases in which it is not admissible, but which are yet cases of pure atony—defective polarity of the spinal cord. But in any nine cases of ergotic labour which have fallen under my own observation, I am persuaded that I have seen more inconvenience than in the nine cases in which I have administered strychnia.

In the 'Lancet' of June 14, 1856, I published a short letter in which I incidentally referred to the use of strychnia as an oxytocic. Curiously enough, a letter from Dr. Matthew Corner appeared in juxtaposition with my own, detailing a case of poisoning by strychnia. The patient swallowed two grains of strychnia by mistake. She was pregnant, and aborted in the course of the action of the poison. The case terminated favourably. I have since become acquainted with the case of a lady who aborted five times consecutively whilst under the influence of nux vomica given as a tonic.—*British Medical Journal, Jan.* 2, 1858, *p.* 8.

135.—ON THE TREATMENT OF INFANTILE HYDROCEPHALUS BY ELASTIC PRESSURE.

By Richard Phillips, Esq., London.

[Five and thirty years ago it was known that it was possible to get rid of encephaloid effusion by mechanical pressure; probably the difficulties attending the methods hitherto used have prevented the use of this agent in treatment.]

In the hydrocephalus of infants, when once the soft union of the cranial bones yields to the expanding influence of the fluid within the brain, I believe the progressive increase of the effusion is mainly attributable to an atonic, passive condition of the meningeal vessels, resulting from the absence of that resisting medium offered by the healthy, normal calvarium. Truly this is but a *post hoc* hypothesis; still, inasmuch as it explains very satisfactorily the principles on which my treatment is based—viz., pressure, or *active resistance*, there seems to me no good reason why it should not be advanced. Ordinarily, in this disease. effusion goes on gradually increasing till a limit is reached of the distensibility of the dura mater, or till death from internal structural lesion ensues. In the former instance, the absorbents, flaccid or paralyzed, or in some way rendered useless, are unable to dispose of the percolated fluid, when the whole mass of brain, serum, and distended membranes, becomes consequently encased by an extension of ossific deposits, and the poor patient lives on an object of lasting pity, most probably utterly helpless, having a head

vastly disproportioned in size and weight to the power of the muscles appointed to direct its various movements, and which cannot therefore maintain (or if so, with the greatest difficulty) its centre of gravity on the spinal column, its natural support and fulcrum of leverage.

Case 1.—Mrs. T——'s infant, whose head had been subjected to severe pressure at birth, owing to the early rupture of the membranes whilst the os uteri was in a rigid, undilated state, rendered necessary by flooding from a partial placental presentation. This child, two days after birth, appeared to be in great pain, which was attributed by the nurse to the bowels not being cleaned of the meconium. A little ordinary medicine was given for this purpose, but without any relief to the child's sufferings; for, at short intervals, its screams continued day and night. My attention was now attracted by a heat and redness of the scalp, and an apparent enlargement of the head. The latter in a few days became more obvious; the vessels of the scalp more engorged; the eyes fixed downwards, and having a tremulous motion, and the stomach so irritable, that but little food could possibly have been retained in it. Day after day the enlargement continued to increase rapidly, the sutures gradually yielding to the hydrostatic pressure from within, so that by the end of a fortnight, I could place my ring finger between the division of the frontal bone, along the longitudinal and also the lateral sinuses; even the nasal bones had a space between them. At this time the operation of tapping was proposed, but the poor child's powers seemed so entirely exhausted, that the father (a retired surgeon), after much deliberation, preferred that his child should take its chance of living or dying in a natural way, to subjecting it to an operation. In this view my own judgment entirely coincided. Three days later the appearance of the little sufferer was most revolting, the scalp distended to its utmost limits, shining, and livid from venous congestion; the eyes were directed downwards and inwards below the axis of vision, and constantly oscillating; the limbs perfectly emaciated and shrunken, and the countenance wearing the expression of a seven months' hydrocephalic fœtus. There was still left a slight power of suction, but the stomach remained equally irritable, and the child kept constantly screaming. The tension of scalp was at this time so great, that it was difficult to divest oneself of the apprehension lest the whole mass should suddenly burst, and thus terminate a scene too distressing to contemplate.

Partly with the view of inducing absorption of the fluid, but chiefly with the hope of preventing the threatened catastrophe, I constructed an elastic loop, or fillet, with strong india-rubber webbing, two inches wide, with which to encircle the head. Having made the fillet purposely too small in the girth, I was enabled, by stretching it with both hands from within, so to adjust it as to exercise a considerable amount of well-regulated pressure round the dis-

tended cranium. A cold spirit lotion was also applied frequently to the heated scalp, and the head directed to be supported by a pillow.

On the third day after adjusting up the elastic fillet, the nurse informed me that the band had become loose, and which I thought might probably arise from the effect of heat on the caoutchouc; but on a close examination, it was obvious that the cranial bones had approximated each other, and that there was less tension of the scalp. I now had the fillet taken in to the extent of an inch and a half, stretched it, and put it on again.

In three days more the band was observed to be quite slack, and I had the gratification of finding the different bones had almost been brought into contact; that the scalp was slightly wrinkled; the eyes again visible, and less tremulous, and the general aspect of the child greatly improved. The fillet was again taken up, re-adjusted, and allowed to remain on another fortnight; by which time the bones had positively overlapped each other considerably, forming prominent ridges in the situation of the different sutures. The eyes would now follow a lighted candle in any direction, and had but little of the vibratory, oscillating motion which had been so conspicuous throughout; the stomach retained all the food, and the child showing no signs of pain or distress, gradually gained flesh, and became more vigorous.

Union having apparently taken place between the cranial bones, except, of course, at the fontanelles, which were not, however, larger than usual, I conceived all that simple pressure and mechanical support could effect, had been obtained, so the fillet was removed, and directions given to sponge the scalp frequently with an evaporating lotion.

Eight months after birth the condition of the child was as follows: The head certainly somewhat larger than that of a child of a similar age, but moves easily at will in all directions; the ridges produced by the over-riding of the bones are fairly levelled off, and the sutures feel smooth and even; the anterior fontanelle is depressed below the level of the adjacent parts, and but little hair has grown on the scalp. The child exhibits in a diminished degree the ordinary marks of mental development, but there is left a slight strabismus, and quivering motion of one eye; the limbs are tolerably well developed, and the flesh feels firm and healthy. After a short course of iodide of iron the eye became steady, but the squint remained. It seemed probable indeed that all the fluid was not absorbed, but that the portion still left may possibly be necessary to afford the required support to the brain till the unnatural sized cranial case became filled by the gradual growth of the organ. I therefore determined to let well alone, taking care to give every facility for increasing the child's constitutional vigour in every possible way.

All has gone on well with the case; the boy is now ten years of age, has gone through the catalogue of the diseases of childhood, in

addition to a series of clonic convulsions for twenty-four hours, after swallowing some india-rubber, but which ceased as soon as the substance passed in a semi-dissolved state. He is chiefly distinguished from his brother by being a little more headstrong and impetuous, and having a slight cast in one eye.

Case 2.—J. W——, a twin child, of the age of three months, had a febrile attack, with great heat of scalp, marked scantiness of urine, irritability of stomach, constant screaming fits, and slight convulsions, with the head thrown backwards upon the pillow. The head, according to the mother's account, soon began to enlarge; and, at the age of six months, when I first saw the case, measured twenty inches in circumference, the parietal bones were separated from each other, and from the frontal and occipital bones, to the extent of a quarter of an inch, the anterior fontanelle was raised and fluctuating, the eyes were depressed below the margin of the lower lids and tremulous, and the whole trunk and extremities in a state of great emaciation; the abdomen swollen and tympanitic.

The elastic fillet was adjusted as in the former case, the bowels cleansed by mild mercurials and castor oil, and a course of iodide of iron prescribed. The size of the child's head, in ten days, began to diminish, and the edges of the bones to approximate each other; the eyes became by degrees more visible and less tremulous; the heat of scalp greatly lessened; and the irritable state of the stomach perfectly tranquil. At the end of three months there was a firm bony union at the different cranial sutures, the head had assumed a conical form, but the fontanelle was quite flat; the eyes had regained their proper position as to elevation, but there was slight strabismus and oscillation of the globes when the head was moved. The child had now also considerable power of moving its head into the upright position, and that for the first time; the limbs had become plump and fairly vigorous. It would notice objects as much as other children of its age; and, instead of being cross-tempered, irritable, and restless, had become remarkably amiable, and a tranquil sleeper.

It may be well here to mention, that owing to the more advanced age of the child, there was some difficulty in preventing it from slipping off the fillet with its fingers, and that it became necessary in consequence to secure it by cross-bands over the vertex, and a chin-stay below.

One or two inferences have occurred to me in the treatment of the foregoing cases which it may be as well, perhaps, to mention as bearing on the particular time when success may most reasonably be hoped for.

1st. It would appear that when hydrocephalus is progressing in young infants, the process of ossification in the cranial bones goes on with supernatural rapidity, as if nature were eager to protect the all-important centre of life as quickly as possible, unduly exposed as it is, under present circumstances, to external injury; the consequence of which is, that after the edges of the bones have been

brought together, and union taken place, the circumference of the head still remains considerably larger than would have been the case had there been no disease. *The earliest possible age, therefore, and where the case is not of long standing, are, I conceive, the conditions most favourable to the treatment by pressure.*

2nd. That, although when we have succeeded in approximating the bones, and maintaining them in that position long enough to effect their intimate union, there is reason to believe there may yet remain more or less unabsorbed fluid in the ventricles, as evidenced by the tremulous state of the eyes and an abnormally large cranium, this is not nevertheless to be regarded as an unsatisfactory result, inasmuch as it was perfectly evident to me, when observing the progress of Case No. 1, that in proportion as the encephalon became developed synchronous with the body's growth, so the remaining fluid in the ventricles was gradually absorbed and disposed of, in consequence of the increased pressure within the cranium; the bones being now fixed just as the larger portion of fluid had been influenced by the sustained pressure *ab externo.*

In Case No. 2, the head is now much larger in proportion than was the case with the first child at the same period of its history, which I attribute to the circumstance of the cranial bones having had time to radiate by ossification to a more extended circumference before the treatment was commenced; but the *concave* state of the fontanelle, the firm union of all the bones, the cool state and natural colour of the scalp, the lessening of the strabismus, the rapid development of the mental faculties, as well as the progressive growth of the limbs and frame generally,—all lead me to conclude that it is following precisely the same course as did Case No. 1, and that in due time the cure will be in every respect as complete and satisfactory in one as the other. I deemed it right in this case to give a course of iodide of iron, because the child was so pale and anæmic (scalp excepted) when first brought to me. It had for some weeks been under treatment in very competent hands, and was considered to be in a hopeless state when placed under my charge. This I mention to show that even in what seem the most unpromising cases there is good reason to anticipate the happiest results from the peculiar form of treatment here so imperfectly advocated and explained. Not, indeed, that I am presumptuous enough to suppose that all cases of infantile hydrocephalus are to be cured in future on the principles I have endeavoured to enunciate; but with perfect truth it may be said, that a more exaggerated example of the disease than Case No. 1 could scarcely be conceived, neither would it be easy to select a more unpromising case, from length of standing and constitutional atony, for probationary experience than Case No. 2.

Sir Gilbert Blane (the authority before referred to) and others have treated, with partial success, cases of hydrocephalus by mechanical pressure, the means employed being bandages and adhesive strapping;

but this is very different, both in principle and extent of power, from the sustained, well-regulated support and pressure obtained by the elastic fillet I employ. In the former there is all the inconvenience arising from the growth of hair on the scalp to be considered, and also the great probability that all the good we could reasonably hope for must be limited to a very short period after the strapping is applied; for as there is no elasticity in the material used, all pressure ceases as soon as diminution of bulk begins; whereas, in the latter mode, the pressure is kept up in a greater or lesser degree till the caoutchouc filaments have shrunk to their natural limits. The taking up and readjusting, too, of the elastic fillet, is an affair of but a few minutes, or even less still, if we are prepared with a proper succession of sizes; but the removal of a number of adhesive straps from the hairy scalp of a screaming child, and the careful readjustment of the same every twenty-four hours, is a process requiring almost the attributes of a Job, and a not over-sensitive state of the operator's *portio mollis*.—*Lancet, Nov.* 28, 1857, *p.* 543.

136.—M. VELPEAU *on the Speculum.*—'La France Médicale' of the 13th February contains some clinical observations made by M. Velpeau, at the "Charité" Hospital, upon a case of supposed malignant ulceration of the neck of the uterus. In the course of his remarks the lecturer stated that professional men generally overrated the diagnostic powers of the speculum; and that in nine cases out of twelve we can very well dispense with it. Both experience and reasoning tend to render the use of the speculum less frequent. This instrument, in fact, teaches us nothing respecting the volume, shape, position, or density of the organ to be examined. The only circumstance which it brings to light is the tint of the cervix, and the knowledge of this tint is often of no use whatever. The finger, M. Velpeau thinks, is far more useful: with it we make out ulcerations, granulations, fungosities, and the consistence of the cervix. Nay, the speculum often leads into errors of diagnosis, and makes us suspect lesions which have no existence. The neck of the uterus, caught by the extremity of the speculum, appears larger than it really is, and the os looks gaping; nor should it remain unmentioned, that a simple fold of the vagina is often mistaken for the cervix, and the caustic is applied where it was not intended to act. M. Velpeau, without rejecting the speculum, wishes, however, that its use may be considerably restricted, and that young practitioners should get accustomed to establish their diagnosis by means of digital examination.—*Lancet, March* 6, 1858, *p.* 243.

137.—*A new form of Cotton Wool Pessary.*—Mr. WALTER BRYANT recommends a new, simple, inexpensive, and very efficient form of pessary, devised by him for cases requiring uterine support, or

the employment of medicated substances in the vagina. The pessary is composed of cotton wool, encased in a pyriform net. It is softer, less irritating, and far more cleanly than the sponge or caoutchouc pessary, and readily absorbs astringent or other solutions which may be prescribed. The mouth of the net is closed by a stout silk thread, which hangs through the vagina, and allows of the ready withdrawal of the pessary.—*Lancet, Feb.* 27, 1858, *p.* 217.

138.—*Sore Nipples*—A correspondent of known experience and judgment strongly recommends equal parts, by weight, of glycerine and tannin as the best application for sore nipples. It is also an excellent remedy for chaps and excoriations of other parts. The tannin dissolves readily in the glycerine.—*Boston Journal.—Med. Times and Gazette, Feb.* 6, 1858, *p.* 146.

MISCELLANEOUS SUBJECTS.

139.—ON THE ABSORPTION OF PUS CONSIDERED IN ITS RELATIONS TO PRACTICAL SURGERY.

In the early periods of histological research it was a question of frequent debate as to whether true pus could ever be re-absorbed. A pus corpuscle was, it used to be asserted, too large a body to be capable of being taken upeit her by lymphatics or veins, and among theorists there was a strong disposition to maintain that serous fluids alone could be removed without breach of any part of their containing sac. This is now generally admitted to have been the most puerile logomachy. That pus corpuscles as such cannot penetrate unbroken membranes is certain, but that they may disintegrate, and after having thus been resolved into their molecular and fluid elements, that they may be wholly re-absorbed, is now acknowledged by almost all. The state of the case is with them exactly as it is with those of blood; and every one will grant that the latter fluid is easily susceptible of absorptive removal. Assuming, however, the general principle to be granted, there still remain several questions of great, and almost daily interest to us all in connexion with this matter, about which opinions are by no means unanimous. Does the absorption of purulent collections practically often occur? Under what circumstances may it be hoped for? By what treatment may it be favoured? When it does occur, is any injurious influence exerted upon the system?

In the hope of contributing data towards the solution of some of these, we have thrown together the following brief and very imperfect notes :—

And first, in reference to the frequency or otherwise of the absorption of large collections of pus, let us quote the opinion of an exceedingly clever pathologist and surgeon. "In the surgical treatment of large chronic abscesses, it used often to be tried to obtain cure without discharging the matter, by promoting (as was then thought) the absorption of pus. Bleeding or purging, vomiting or sweating, or other evacuations were had recourse to, and not infrequently the fluctuating tumour vanished. But this was only for a time. A large proportion of the serum had been withdrawn from the contents of the abscess, and these had been reduced to little beyond cells; but as soon as the blood had recovered its natural constitution, these cells (just like the nucleated cells of glands) again exerted their power, and surrounded themselves with their natural atmosphere. Accidental circumstances will often act like the treatment to which I have referred, and will

reduce the fluidity of pus so that an abscess apparently vanishes; but the cells may remain quiescent for an indefinite time, and may presently again surround themselves with fluid blastema, forming the same amount of pus as at first. The perfect and permanent absorption of an abscess consisting not only in the removal of its serum, but in the destruction and dissolution of its corpuscles, so that the part shall retain no tendency to the re-accumulation of its previous contents; this, I am persuaded, is amongst the very rarest occurrences in surgical practice."—*Simon's Lectures.*

There is much of truth in these remarks, although we cannot but think them too strongly put. Without admitting with Mr. Simon that the cells of pus tend to secrete around themselves a fluid blastema by any similar power to that possessed by nucleated gland-cells, there can be no difference of opinion as to the fact that the first stage in its absorption is the removal of its fluid, and that its solid constituents remaining behind give a great tendency to relapse. Do they not effect this more by the irritation of foreign material tending to relight the original inflammation? We do not speak of cases in which the serous part of an abscess has been partially drained off under the influence of violent diuresis, and the refilling of which, when the circulating fluid has been again supplied, is fully explained by the law of endosmose, but of those cases in which the absorption has been slow, and coincident with improving health. In these latter is there not enough in what is known in the liability of all inflamed tissues to again take on the diseased action, especially when a permanent source of irritation remains behind, to save us from the necessity of assuming that pus-cells possess an active secreting function? But enough of speculation; let us pass on to the record of facts.

Note I.—Ophthalmic practice furnishes us with by far the best and most irrefragable examples of the absorption of pus. We recollect hearing Mr. Critchett declare to his clinical class at Moorfields, that he had over and over again witnessed the complete removal of undoubted pus from the anterior chamber of the eye. We mention his name only because we chance to have a clear recollection of a most positive expression of this opinion, not because he is at all peculiar in holding it. All ophthalmic authorities, we believe, admit the possibility of absorption of hypopyon. In not a few cases what is called pus in the anterior chamber of the eye, is in reality, a mixture of pus and lymph, but still there can be no cavil, that it is not unfrequently a homogeneous fluid, capable of displacement by any motions of the globe, and in no respect distinguishable from true pus. As the cornea, in these cases, often retains perfect transparency, the progress of the absorption may be easily watched. It is often very rapid, almost as much so as that of blood. The only remark to be made as to the treatment which favours its absorption is, that it is usually that which subdues the inflammation which had caused its secretion.

Note II.—The absorption of fluid from inflamed glands is a very

frequent occurrence. As to whether such fluid is pus or not, there is, of course, room to doubt. That it is so, however, in a vast majority of cases, few reasonable men will deny. How seldom do we, on using the lancet to a bubo, find its contents merely serous. Yet how often, after fluctuation has been plainly detectible, do we witness its disappearance without any evacuation. We published, some years ago, a note on Mr. Hilton's treatment of buboes, and stated that that gentleman held that absorption might almost always be procured. His method of treatment consists in the application, over the whole surface, of a saturated solution of nitrate of silver, containing a few drops of strong nitric acid. It is a most powerful counter-irritant, and usually vesicates sharply. The principle is the same as that adopted by many other surgeons. Mr. Lloyd, at St. Bartholomew's, for instance, often orders a blister over an abscess which it is wished to have absorbed, and the strong solutions of iodine are favourites with many for the same purpose. Both Mr. Hilton and Mr. Lloyd we have repeatedly heard speak most positively as to the practibility of procuring the absorption of the fluid from glandular abscesses, especially from venereal buboes. We have ourselves repeatedly known it to occur, and many of our readers will have, doubtless, also done the same.

Note III.—A lad was some years ago under Mr. Birkett's care in Guy's, on account of a large collection of fluid in the front part of the thigh. It was doubtful as to what was its cause, as there was no positive evidence of diseased spine, hip, or femur. That it was either of lumbar origin or an abscess in the cellular tissue, were the most probable conjectures. Mr. Birkett one day directed our attention to the case as an example of the absorption of pus, stating that there had at first been "half a pint, if any." Its removal has been slowly effected, nine months having been occupied in the process. The local treatment had consisted in painting the part with iodine. As absorption became complete, the parts around assumed an indurated and cicatrix-like condition. The lad had greatly improved in health whilst under treatment.

Note IV.—In cases of carious disease of the vertebræ, there is rarely any doubt as to the nature of the fluid secreted. It is almost invariably purulent. We can indeed scarcely suppose that extensive destruction of the vertebral bodies can take place without the formation of an abscess. Yet how frequently do we see cases of spinal curvature in which no scars exist! A very good example of this we made a note of in November, 1852. The patient was a man under Mr. Lloyd's care in St. Bartholomew's, for diseased ankle. He was bent double by an angular curvature of the dorsal spine, but the anchylosis of the bones had long been perfect, and he enjoyed good use of his limbs. There could be no doubt that the bodies of several vertebræ had been destroyed. He stated that the disease had begun at the age of five, and that for some time he had been paralysed in his legs. He was quite certain that there had never been any discharge

whatever from any part. We examined his back and sides carefully, and could find no trace of a scar. An almost precisely similar instance came under our notice at the Victoria-park Hospital, some years ago, in a man under Dr. Bennett's care for diseased lungs. In these, however, it may be alleged by the sceptical that there is no proof of an abscess having ever existed. The following is less open to doubt:

Note V.—In 1856 we saw a young gentleman of delicate family who was invalided by supposed spinal disease. In his left lumbar region, just beneath the short ribs, was a prominent, freely-fluctuating swelling, and there was an angular prominence of one of the lower dorsal vertebræ. The disease had existed several months. A physician as well as another surgeon saw the case, and no one doubted as to the existence of a large collection of matter. Counter-irritants (nitrate of silver) were fully employed, and cod-liver oil and tonics were given. By slow degrees the fluid diminished, and at length finally disappeared. The patient is at present in very fair health, and although the angular projection of the vertebra still remains, yet he is so little inconvenienced that he is accustomed to enjoy very free exercise of all kinds. It is now more than a year since all evidence of the existence of matter ceased to exist, and there can, therefore, be little doubt but that the absorption is permanent.

Note VI.—A woman was treated under Mr. Hilton's care, in Guy's, about two years ago, for a peculiar form of contraction, with partial paralysis of the arm. An abscess, or, at least, a large collection of fluid, attended with surrounding inflammation, formed in the front aspect of her fore-arm. It was quite expected that this would have to be opened; but, contrary to what was looked for, it gradually subsided, and underwent complete absorption. Some months later the arm was amputated, and, in the site of the supposed abscess, was found still existing a small quantity of yellow curdy material, quite dry, and exactly resembling the remains of concrete pus. Mr. Hilton at the time directed especial attention to this interesting case, as affording one of the most indubitable instances of the absorption of an abscess which he had ever met with. There was every reason to believe that the removal, even of the cheesy matter, would soon have been effected had not the limb been amputated, since all inflammation about it had wholly passed away.—*Med. Times and Gazette, March* 20, 1858, *p.* 295.

140.—*A New Preparation of the Superphosphate of Iron and Lime.* By Dr. ROUTH.—This is prepared by dissolving phosphate of iron and phosphate of lime in equal proportions in hot metaphosphoric acid, and adding sugar to the solution to make a syrup. Some years ago he had recommended the syrup of the superphosphate of iron (elsewhere known as the biphosphate of iron) as a remedy for weakly children, and those weak adults with mental disorders. Its uses as

such had been since amply proved. He now recommended this as an excellent remedy in rickets and weak children with deficient osseous development. It was very pleasant to take, and did not blacken the stools. It was prepared by Mr. Greenish, of New-street, Dorset-square. Each ounce of the syrup contained five grains of iròn and five of phosphate of lime.—*Lancet, March* 6, 1858, *p.* 250.

141.—*Mechanical Appliances.*—Mr. Haynes Walton introduced an artificial arm, made for a man who had lost that member four inches from the shoulder. Instead of the usual material, wood, untanned ox-hide was used, which combined lightness with durability; moreover, a cast could be taken of the part to be fitted, to which the hide could be accurately moulded—a matter of no slight advantage. The sock which is fitted to the shoulder gives the man power to lift very great weights without inconvenience; the elbow-joint is fitted with a ratchet and spring, which admits of the forearm being placed at any angle or straight. The hand is a fine specimen of mechanism, supplied with springs in the two first fingers, which keep a pressure on the thumb, and so enable the wearer to hold anything; the joints are flexible, and are so well made that it would be impossible to tell, when a glove was worn, that there was any counterfeit.

An artificial leg for amputation above the knee was then produced: it was remarkably light, and could be laced to the stump, so that adaptation could always be made. The action at the knee and ankle-joints were very artistic; no complication of india-rubber ligaments, or spiral springs—one small spring, depressed by a leather bar, producing the action at the ankle. The strength and simplicity of these limbs guarantee them one of the greatest improvements of modern days.

The next was a leg for amputation close below the knee, in which a man could kneel, thus taking the whole weight of his body on the knee, relieving him of any galling tightness or chafing, which is common, according to ordinary methods.

Mr. Walton lastly introduced a new patent truss, with which he was particularly pleased. It consisted of a light steel band, covered in the ordinary way, to which was attached a pad working on a hinge, having at the lower end a lever and spring, by the action of which the pad is pressed directly backwards, and kept in close adaptation during all the movements of the body. The maker of these valuable articles is Mr. Newling, Park-street, Oxford-street.—*Lancet, March* 6, 1858, *p.* 250.

142.—THE METEOROLOGY OF 1856 AND 1857.

By J. A. Hingeston, Esq., Brighton.

In each year in which cholera has broken out in this country, the barometer has invariably stood at 30 inches, a little more or less,

throughout the whole period of its continuance. This was the case in 1832. My attention was drawn to the circumstance from observing a high barometer with a cloudy sky, although I was not aware of the eventual importance of the observation I was then making. In 1853 this was remarkably the case: the disease was at its worst when the barometer was at 30 inches, and it declined in exact proportion as the mercury sank to 29·500 inches or thereabouts. I published an account of it in the 'Association Medical Journal,' No. xliii, October 21st, 1853. It was again the very same in 1854, according to a series of very careful observations that I made in that year, as well as from all that I could gather from the observations of others published on this interesting point At p. 33 of the *Registrar-General's Returns* for the quarter ending September 30th, 1854, it will be seen that at forty-seven stations in England, Wales, Jersey, and the Isle of Man, where authentic observations were taken, the barometer stood at 30 inches, a little above or below, but chiefly at 30 inches, during September, when the disease was at its worst; and that subsequently, when the disease was declining, the returns from the same localities for the quarter ending December 31st, 1854, showed the barometer at a mean elevation of 29·740 inches, and occasionally as low as 29·600 inches. But the last year, 1857, which was so remarkable for its salubrity, the barometer oscillated between 28·500 inches and 30·578 inches—a difference of two inches or more, as may be seen by referring to the *Registrar-General's Returns* for the three first quarters of that year, giving the observations taken at the same places as those already quoted for 1854. My own observations agree entirely with these returns. In the 'Association Medical Journal,' No. xlviii, October 18th, 1856, I published an account of the barometer for that year, when cholera was absent, in comparison with that for 1854 when cholera was present; and the contrast was as striking as it was complete and conclusive. It showed the barometer obstinately at 30 inches in the year of the cholera, and oscillating considerably above or below it when the disease was absent or declining.

As to the electricity of healthy and unhealthy years, the results are less satisfactory, because the subject, in a medical point of view, is a recent, if not a new one; and yet my observations, such as they are, supply data by no means insignificant, and which. when coupled with those of the Astronomer-Royal at Greenwich, published in the *Registrar-General's Weekly Returns*, furnish matter of no small value and interest. Thus, during the cholera of 1853, the terrestrial and atmospheric electricity was generally considered negative; while, during the cholera of 1854, it was reported positive, but weak. In 1832 I had not thought of connecting electricity with pathology, nor am I aware of any published records on this subject of that date; but judging from the kind of sky which prevailed, the stillness of the air, and the debility that characterised disease at that time, I should, on comparing it with what I now know of the question have no doubt in

regarding it as negative, weak, or *nil.* My opinion is problematical, and open to correction by those fortunate enough to possess any authentic remains on this point, and which would be most acceptable were they recovered and brought to light. In 1854 my private observations led me to conclude that the electricity was negative, certainly weak, and frequently inert. In 1853 when the cholera was so severe at Newcastle, in the month of September, the prevailing electricity was negative.

We do not yet know the precise meaning of *positive* and *negative*, as applied to electricity. They are conventional terms used to express opposite scientific relations, but not significant of any acknowledged quality or state. Neither is it possible to designate either the one or the other with the same exactness as we describe an algebraic quantity, a mathematical axiom, or a medical fact. We rather imply conditions, the extent and nature of which are indefinite. This ambiguity is unavoidable, but not irremediable. The subject is still *sub judice;* and an approximation to the truth is preferable to no knowledge of it. To me it appears all but incontestible, that what is called negative electricity goes with diseases called asthenic, while the positive belongs to such as are sthenic or inflammatory. Negative electricity is coincident with mild and moist weather; the positive with the cold and frosty, or the hot and dry. In the summer the electricity is considerably less energetic than in the winter; but then, in the former season, its energy is restored by lightning or gales of wind. In 1857, when the temperature was high and dry, the electricity was for the same space of time (270 days) positive and generally active, with strong tension and the negative was limited to a very small number of days. (See the Astronomer-Royal's Observations in the *Registrar-General's Weekly Returns* for 1857.) Now, that year was a singularly healthy one. More extended inquiries may show many of these notions to be erroneous or nugatory; and, on some future day, electricity itself may stand on a new and firmer basis. My mind is open to conviction, and I am ready to consider the question in all its bearings.

Be this as it may, the kind of electricity is certainly connected with the amount of daylight. There is less light on those days on which the negative electricity prevails, than on the bright, when the electricity is, with few exceptions, positive. In cholera periods, the light is diminished. I have already described this kind of atmosphere in the 'Association Medical Journal,' No. clxxxvii, August 2nd, 1856. Of the two years 1856 and 1857, the latter, though much fairer than the former, was darker by one-eighth. This diminished daylight was owing to the greater amount of clear blue sky in 1857; for blue sky gives back no reflected light. Large white-headed clouds were numerous, and there was a good deal of snow in the winter of 1856 both of which increased the reflected light greatly. But reflected light contains polarised rays, which are reasonably supposed to be less favoura-

ble to health and life than the direct solar beam; and the insalubrity of the moon's ray is thus accounted for. The year 1857, although somewhat darker than 1856, was illumined by the direct solar beam, which may help in accounting for its greater salubrity.

The returns of health are seldom favourable when the sky is grey, the air moist, the daylight diminished, and the electricity negative. The cholera atmosphere is a case in point. On the contrary, the public health is good when the season is open, the clouds distributed in masses, the moisture condensed into showers, and the electricity positive. A large amount of solar beam is as essential to the human as it is to the vegetable creation; hence the insalubrity of cities enveloped in smoke, the northern aspect of dwelling-houses, barracks, and hospitals, and the short lives of miners, clerks, and artisans, shut out from the daylight at noon.

By a small contrivance, an account of which was published in the 'Association Medical Journal,' No. cli, November 23rd, 1855, I have been able to measure and record the amount of daylight for the last two years and upwards. I regret that I had not found out the means of doing so twenty-five years ago. I find that February is the darkest month in the year, and August the brightest; the last six months are brighter by one-fourth than the first six, the atmosphere seeming to have acquired a luminosity of its own, which it does not lose till the end of January. If carefully prosecuted, it is an inquiry intimately associated with health and longevity; and it would be most interesting, were it applied to town and country, high and low situations, sea and land, northern and southern latitudes.

The years following an outbreak of cholera have hitherto been marked by an increase of human life, shown by the returns of a diminished rate of mortality. This phenomenon has been prominently exhibited in the last three years succeeding to 1854. It has been variously accounted for. The epidemic was supposed to have carried off the sickly, and left only the strong; but this is contrary to the fact, for it was the mature and strong that were the most obnoxious to the disease. Others have surmised that cholera occupied the place of other diseases; and that, when it had attacked and carried off its particular victims, it left a healthy population behind. This is so far true, as that, in 1853, the rate of mortality from the ordinary causes was one-fifth below the average. Again, it has been conjectured that the better habits of hygiene adopted by the public, impressed with a dread of infection, tended to improve the general health; but can this moral and hygienic discipline be shown and vouched for? In 1855 and 1856 the natural increase of the population was ascribed to the return of the army and navy from the seats of war; but this infusion of fresh life does not serve to account for the singular absence of fatal disease throughout the rest of the population. It is evident that the phenomenon remains to be explained upon principles of which we are not yet cognisant. During the past year the number of

persons who have died at a very advanced age is some proof, as far as it goes, of the old being able to survive the deleterious influences of a prevailing epidemic and a malarious atmosphere conjoined. Of more than 200 nonagenarians recorded in the *Registrar-General's Weekly Returns* for 1857, a large proportion is stated to have been living not only in unhealthy localities, but among the lower classes of society. Of 123 women, the greater number were widows. Thirty-five only were men, of whom a scanty few were designated as *gentlemen*. Seven had reached the verge of 100 and upwards. This return of extreme old age is only for one year, but it is sufficient to show that the old escape the pest as well as many of the young. How, then, shall we account for the extraordinary phenomenon of the increase of life, if not of longevity, after an outbreak of cholera? The answer to the question involves the consideration of a wide range of circumstances, pathological, social, and atmospheric; and the results of experience extended over a large portion of the globe, and continued uninterruptedly for a great length of time, are requisite for arriving at a definite conclusion.—*British Med. Journal, Feb.* 27, 1858, *p.* 163.

143.—ON SOME AFFECTIONS OF VOLUNTARY MUSCLES.

Some of the Consequences of Blows and the like Injuries of Muscles. —A blow on a muscle or on its nerve may be followed by complete wasting. For instance:—I have seen a case of total atrophy of the abductor indicis and adductor minimi digiti, which followed a sharp and very severe blow in front of the anterior annular ligament.

After a severe injury to a joint, the muscles acting on it may pass into a state of fixed contraction, or may start into contraction at any effort to move them, whether actively or passively. The joint thus stiffened is likely to be regarded as one that has been wrongly treated; the fracture or the dislocation, if either have occurred, may be thought to have been left unreduced, and an incurable anchylosis may be talked of. But the stiffness of the joint is due to the muscles alone; and if, by giving the patient chloroform, they be relaxed and put beyond the influence of his will, the joint becomes at once naturally movable, or nearly so. I have seen this condition at the elbow, the knee, and the hip; and I believe that I have known a similar affection of the muscles of the neck, causing temporary immobility of the head, after a blow on the vertex.

The patients are generally young persons, and the history of one may suffice; for all the cases were very similar in their results, however different in the accidents.

A boy, 10 years old, fell on his elbow and broke off the external condyle and adjacent portion of the articular end of his humerus. The arm was kept at rest on a well-padded angular splint, and union took place in the usual time, but the broken condyle remained prominent. He regained some power of movement of the elbow, but,

apparently through neglect of the rules for using it which his surgeon gave him, he gradually lost this; and when I saw him, five months after the accident, the elbow was almost perfectly stiff at an angle of about 120°.

I took him into the hospital, and he was put under chloroform that the joint might be forcibly bent. But as soon as he was quite insensible the joint became easily movable through an angle of fully 90°, and only just short of complete flexion and extension. As soon as he recovered from the chloroform the joint became as fixed as before in the extended position; it gradually became more stiff as he became more sensible and his muscles less relaxed.

The power of voluntary motion of the joint was gradually regained, with the help of frequent passive motion and the patient's own efforts.

The treatment here used will, I believe, usually be sufficient. Chloroform, which may first serve as a test of the state of the joint and muscles, may afterwards be used, to give opportunity for painless and free motion of the joint while the muscles are recovering. And their recovery may be accelerated by friction, warmth, passive motion to any extent that they will allow, and (which is far better) every possible effort of the patient's own will to move them.—*Med. Times and Gazette, March* 13, 1858, *p.* 261.

144.—ON THE OIL OF THE DUGONG AS A CURATIVE AGENT IN CHRONIC DISEASE.

So unpleasant is cod-liver oil, that there are very few persons who can take more than three or four tablespoonfuls in a day, which, at the most, will only yield two oz. of carbon to the system, towards 13 9-10 oz. required, leaving a fearful balance against the sick man. Fortunately, however, the theory is better than the remedy commonly used, and the sick people of Australia are singularly favoured, in having in their own territory an herbivorous cetaceous animal, the Dugong (*Halicore Australis*), inhabiting the rivers and bays of our eastern coast, from Moreton Bay to Cape York, from which an oil can be procured, possessing all the properties required for this purpose.

This animal is thus described in Knight's 'Animated Nature.'

"The dugong (*halicore* dugong: Cuvier), is a native of the Indian Seas, being common among the islands of the Indian Archipelago, and visiting also the coasts of New Holland. Its favourite haunts are the mouths of rivers and straits between proximate islands, where the depth of water is but trifling (three or four fathoms), and where, at the bottom, grows a luxuriant pasturage of submarine algæ and fuci. Here, in calm weather, may small troops be seen feeding below the surface, and every now and then rising to take breath. The position of the mouth, the muscular powers, and mobility of the lips, garnished with wiry bristles, and the short incisor tusks of the upper jaw, enable

these animals to seize and drag up the long fronds of subaquatic vegetables, which constitute their nourishment.

"The dugong is in high esteem as an article of food, its flesh being tender and not unlike beef; hence it is assiduously hunted by the Malays, who attack the animal with harpoons, in the management of which they are very dexterous.

"The mutual affection of the male and female is very great, and the latter is devoted to her offspring. If a dugong be killed, the survivor of the pair, careless of danger, follows after the boat carrying the body, impelled by an overmastering passion, and thus often shares the fate of its partner; indeed, if one be taken, the other is an easy prize.

"The dugong attains to the length of seven or eight feet.

"In Moreton bay they are frequently met with nearly twice that length."

So sweet and palatable is the oil procured from the dugong that in its pure state it may be taken without disagreeing with the most sensitive stomach, and also used in a variety of ways in the process of cooking; so that this potent restorative remedy may be taken as food, and many ounces consumed almost imperceptibly every day. and thus furnish the system with the requisite amount of carbon for its daily oxidation.

This feeding upon oil may appear at first sight a novelty to many of you, but such is not the case, for its use is more widely spread than is generally thought of. The inhabitants of the arctic regions live upon it almost entirely, and enjoy tolerable health; so also do the inhabitants of Northern Russia and the regions adjoining. To come nearer home, the Guachoes in the Pampas of South America touch nothing for months together but beef, containing a very large proportion of fat; and we are told by Mr. Darwin that the inhabitants of Terra del Fuego, on the occasion of discovering the floating carcase of a putrid whale, regard it as a *feast*, and bury a considerable portion of the blubber in the sand, as a resource in time of famine. The nutritious properties of oil have for many years been known to the farmers of England, who, taking advantage of the fact, are enabled by its use to convert lean, half-starved runts into mountains of beef and tallow, literally illustrating this text of Dr. Gregory—

"'Colligitur adeps usu multi cibi oleosi nutrientis' (fat is accumulated by the use of much oily nutritious food)."

In further support of this theory I find Dr. Prout, in his 'Bridgewater Treatise,' published nearly 25 years ago, makes this remark:—

"Two, indeed, of the chief materials from which chyle is formed, namely, the albuminous and the oleaginous principles, may be considered to be already fitted for the purposes of the animal economy, without undergoing any essential change in their composition."

And again—

"That the oleaginous principle may be converted into most, if not all, the matters necessary for the existence of animal bodies, seems to

be proved by the well-known fact that the life of an animal may be prolonged by the absorption of the oleaginous matter contained within its own body. Thus many hybernating animals, when they retire in autumn to sleep during the winter, are enormously fat. But while they sleep their fat is gradually removed; till they wake in the spring quite divested of it, and in a state of inanition."—(pp. 498, 499.)

From an article in 'Chambers's Journal,' written in especial advocacy of hydropathy, or the water cure, I copy the following extract in support of my argument:—

"The basis of chyle, in the normal state, is a multitude of molecules, or minute particles, each of which is found to consist of a particle of oil or fat, surrounded by a film of albumen, the substance that composes the white of egg. Chyle is, in fact, an emulsion, such as may be formed mechanically by rubbing up together a quantity of oil and albumen. The nuclei of cells are composed of an agglomeration of these oleo-albuminous particles, and it is reasonably inferred that cells can be produced only when oil and albumen are both present in the chyle, and, moreover, properly emulsionised. *The necessity of oil is indicated by the fact, that though fat of any kind may have been altogether wanting in the food, oil is always found in the chyle, being produced by the process of digestion from the starch and saccharine of the food.* Now, it seems pretty well ascertained that the chyle in tuberculous subjects is faulty in this respect. It is *deficient in the fatty element*, and contains albumen in excess, or if fat be present, it is degraded fat—the cholesterine of the chemist.

"This at once throws light on the previously known fact of the efficacy of cod-liver oil, and of fats in general, whether administered internally or externally, in cases of consumption and scrofula. It is now clear *how* they act; and thus what was once a piece of blind empiricism has become one of the few instances of really rational medical practice. Oil is a necessary ingredient in the chyle, the organism cannot in certain states make it for itself: art, therefore, supplies it ready made. It is as *food*, then, not as medicine, that it acts."—Vol. iv., p. 70.

The beneficial effect of dugong oil in chronic disorders in general may be attributed to its nourishing properties, the blood being supplied through the chyle with absolutely necessary ingredients, without that stimulation of the system which almost every article of diet will more or less produce. But in chronic disorders of the digestive organs, in the treatment of which it is peculiarly valuable, I am inclined to the opinion that, in addition to its emollient action upon the digestive mucous membrane, the unusually large proportion of glycerine this oil contains exerts its peculiar solvent powers upon the crudities and inspissated bile, locked up in the alimentary canal, which by their presence keep this highly sensitive membrane in a perpetual state of irritation. This irritation, if not relieved, soon becomes reflected in some of the numerous organs connected with it by nervous communi-

cation; thus, the windpipe—the lungs—the heart—the liver and the kidneys, become at first only sympathetically affected, and, if overlooked, ultimately the seats of fatal organic disease.—*Australian Journal.*—*Glasgow Med. Journal, April,* 1858, *p.* 128.

145.—ON THE VALUE OF ARSENIC IN CHOLERA.

By Dr. Black, Fellow of the Imperial Society of Physicians in Vienna, London.

[The author commences by stating that he believes arsenic to have a specific power in cholera; he has given it in nearly two hundred cases, in none of which has the arsenic ever failed to produce a speedy and permanent cure. It is applicable to every phasis of choleraic disease.]

Case 1.—L. G., aged forty-eight years, married, by trade a basket-maker, at six, p.m., on September 22nd, 1857, began to suffer from diarrhœa. From this hour until ten, p.m., the bowels were moved four times, the evacuations being thin, watery, and offensive in odour. At ten the purging became much more frequent and severe, and was accompanied by almost incessant vomiting and cramps of the abdomen, legs, and even the muscles at the back of the neck. From the time above-mentioned until five, a.m., of the 23rd, the patient is reported to have vomited and purged at least forty times. Shortly after this hour I saw him. He was writhing to and fro upon a bed, which was placed opposite his house-door, in a room ten feet by twelve, with a ceiling not more than six feet high. The apartment was lighted by a small window, which, together with another window of a foot square and the door in question, afforded the only means of ventilating the whole house. His countenance was haggard and shrunken in the extreme; eyes hollow; nose and the parts around the mouth of a deep leaden hue; skin very cold; breath cold; voice hollow, squeaking, and tubular; frequent thirst; pulse scarcely perceptible; breathing hurried and laboured. He had not passed urine since four the night before. A constant moaning was heard, except on the return of cramps, which occurred every three or four minutes, when his sufferings excited loud cries of pain. The purging and vomiting were all but incessant, the vomits and dejections being copious, thin, and evidently serous in their character. He was ordered five drops of liquor arsenicalis every fifteen minutes until the symptoms became less urgent, and then to have the same dose every hour until my next visit. Twelve, a.m.:—After the first dose of arsenic there was no return of cramps; the third dose was followed by a complete arrest of purging, whilst vomiting had occurred but three times during the interval of my first and second visits. The countenance still maintained a haggard expression; the nose in part its leaden hue; a slight degree of warmth was beginning to creep over the skin, and

the pulse was now distinct at 120 per minute. Thirst was much less frequent; the breathing less hurried and laboured; but neither had the voice lost its peculiar tone, nor had the secretion of the kidneys as yet been restored. He was ordered to take the usual dose of arsenic every hour. Nine, p.m.:—The bowels were moved once at three, p.m., the evacuations being scanty, and of increased consistence. Has vomited twice, but has experienced no return whatever of cramps. Skin warm; no secretion of urine; pulse 100, larger. To take three drops of the arsenical solution every third hour.

September 24th, nine, a.m.:—Neither purging, vomiting, nor cramps since last visit. Skin hot; face flushed; thirst; pulse 96 per minute, full and strong; passed half an ounce of urine at six this morning for the first time since the commencement of the attack. To discontinue the further use of arsenic, and to take a mixture consisting of the acetate of ammonia, potassio-tartrate of antimony, spirit of nitrous ether, and water.

25th. Quite well.

Remarks.—This case presented, in the time of its occurrence and the manifestation of its symptoms, all the characteristics of a malignant attack; yet five drops of the arsenical solution completely allayed the cramps, and fifteen the purging; whilst a few more doses placed the patient in perfect safety. Confident of the power of my remedy to control the disease, notwithstanding the extreme degree in which the case was when I first saw it, I neither ordered friction to be observed, nor the application of external heat to the body; nor did I administer or cause to be administered, a single drop of any stimulant whatever. On the contrary, the door of the house was allowed to remain open, and a cold draught of air to play upon my patient, whose only drink consisted of a moderate supply of cold water. These apparent disadvantages I purposely incurred in order to test, as far as possible, the curative power of the arsenic. How well it answered my expectations, the easy, rapid, and complete recovery of the case amply testifies.

Case 2.—H. S——, aged forty-four, married, was seized with sickness and purging at noon, September 24th, 1857. These symptoms did not become urgent until six o'clock in the evening, at which time they became more frequent, and were accompanied by occasional cramps of the abdomen. There were now, in addition to the above symptoms, coldness of the general surface, shivering, collapsed features, and thirst, but no cramps of the extremities, alteration of voice, or any leaden hue of the nose and lips. The pulse was 110 per minute, small, feeble, and stopped by the least pressure. She had not voided urine since twelve, a.m. She was ordered to take five drops of the arsenical solution every half hour.

Ten, p.m.—Has neither vomited nor purged since taking the first dose of arsenic. Says that she felt the remedy at once affect her for the better. Has now and then slight twinging pains in the muscles of

the abdomen; feels comfortable; skin becoming warm; pulse 96, larger. To take three drops of the arsenical solution every second hour.

September 25th, nine, a.m.:—Has passed a comfortable night; bowels moved once; neither nausea nor sickness; skin hot; tongue moist, but coated with a white fur; thirst; passed two ounces of urine early in the morning; pulse natural in frequency, but somewhat fuller and stronger. To discontinue the arsenic, and to take a simple diaphoretic mixture.

26th, nine, a.m.:—Neither purging nor vomiting since last visits; feels quite well.

Case 3.—H. R——, aged twenty-seven, son of the above, married, was suddenly seized, at nine, p.m., September 24th, 1857, with violent shivering, sensation of impending death, and complete inability to stand or walk. This occurring at a friend's house, he was carried home, and immediately put to bed. In a few minutes afterwards I saw him. He was then shivering violently beneath a load of blankets, was surrounded by bottles of hot water, and complained of an intolerable weight at the precordia. The symptoms of collapse were well marked, and were becoming more and more so every minute. He was ordered to take six drops of the arsenical solution every twenty minutes or half-hour. Ten, p.m.:—Immediately before taking the first dose, violent cramps of the abdomen had set in, and directly after the exhibition of that dose, a severe paroxysm of vomiting and purging occurred. The vomit consisted of a colourless, glairy, sero-mucoid fluid, mingled with small quantities of food. The dejection was thin, watery, of a faintly bilious tinge, and of a sickly odour. A second dose of arsenic, administered immediately after the rejection of the first, arrested both the vomiting and purging. Has now occasionally twinging pains in the muscles of the abdomen and calves, but no decided cramps. The shivering and extreme coldness of skin have given place to a slight degree of warmth. Expresses himself as feeling much better; slight thirst; pulse 100, soft and regular. To continue the arsenic every second hour.

September 25th, nine, a.m.—Found him sitting up and down stairs. Took the arsenic until the middle of last night, and then discontinued it, as he felt well. Nine, p.m.:—At six this evening the sickness, purging, and cramps returned. He resumed the arsenic, and was relieved by the first dose. To continue it regularly every third hour during the night.

26th, nine, a.m.—Has passed a comfortable night; neither purging, vomiting, nor cramps since last visit; no thirst; appetite improving; skin warm; pulse natural. To take two drops of the arsenical solution every fourth hour.

27th. Discontinued the arsenic last evening. Quite well.

Remarks.—The above two cases occurred in the same house and on the same day. The former was one of cholera of ordinary occurrence.

The latter, in its very outset, threatened to be unusually severe. In the former, the first dose of arsenic permanently arrested both vomiting and purging; in the latter, a similar result was obtained by a second dose. The latter case exemplifies, in a remarkable manner, the specific value of arsenic—firstly, by a recurrence of the choleraic symptoms on too early a discontinuance of the remedy; and, secondly, by the *immediate* control of those symptoms on the resumption of the arsenic.—*Lancet, Nov.* 28, 1857, *p.* 541.

146.—*Excipient for Pills.*—MR. STANISLAS MARTIN suggests, as preferable to honey, which has been recently recommended as an excipient for pills, the employment of treacle, which is far easier of manipulation, a much less quantity being required. Pills so prepared last soft and flexible for years.—*Bull. Thérap.—Med. Times and Gazette, Nov.* 14, 1857, *p.* 511.

147.—*Syrup of Protocarbonate of Iron.*—The facility with which protocarbonate of iron dissolves in organic acids, and its perfect harmlessness in irritable subjects, render it one of the most valuable agents in therapeutics; accordingly, all the new preparations into which sugar has been introduced, for the purpose of giving stability to this saline compound, have been adopted in practice.

M. Dannecy, a distinguished pharmacien in Bourdeaux, having ascertained that the precipitate of protócarbonate of iron, obtained by mixing sweetened and boiled solutions of carbonate of soda and of protosulphate of iron, possesses the singular property of dissolving in simple syrup without becoming coloured, conceived the idea of thus preparing a new ferruginous syrup.

This preparation, being permanent, will be employed in cases in which the form of syrup is preferable to that of pills; for example, in the treatment of children.

The following is the process for making M. Dannecy's new preparation:—Take of purified protosulphate of iron, two ounces; distilled water, sixteen ounces; white sugar, two ounces: dissolve with ebullition, and filter. Secondly, take of crystallized carbonate of soda two and a half ounces; distilled water, sixteen ounces; white sugar, two ounces; dissolve with ebullition, and filter. When the two solutions have cooled, mix them in a glass vessel, and shake for a moment; a precipitate is formed, which is at first white, but soon becomes of a greenish-grey colour, preserving this shade. Allow this precipitate to collect during twenty-four hours; decant. Afterwards take a solution of sugar, in the following proportions:—white sugar, two and a half ounces; distilled water, ten ounces; dissolve with ebullition and filter. Add the precipitate to this saccharine fluid when cold; set it aside to rest; decant. Repeat this process once

more, in order to remove the sulphate of soda resulting from the double decomposition. This washing ought to be accomplished as quickly as possible, to prevent the unnecessary solution of the ferruginous precipitate. Subsequently, agitate this precipitate, from time to time, in a fresh portion of saccharine solution (water, ten ounces; sugar, two and a half ounces). It will dissolve in the course of some days. Lastly, take of white sugar thirty-eight and a half ounces: distilled water, nineteen ounces; add the saccharine furruginous solution, and boil to specific gravity 1·262, at the temperature of ebullition; flavour with tincture of lemon or orange. The product will be sixty-four ounces of almost colourless and perfectly clear syrup of protocarbonate of iron, containing 9·90 per cent. of oxide of iron.—*Bulletin Général de Thérapeutique.*

[It is evident that if the syrup above described really possesses the stability and composition assigned to it, it must prove it a most valuable preparation.]

148.—*Glycerine a proposed Substitute for Oils and Fats in Ointments.*—Mr. G. F. Schacht proposes to substitute for oils and fats in ointments a "plasma," prepared by mixing one fluid ounce of glycerine with seventy grains of starch powder, and heating the mixture gradually to about 240° F., constantly stirring. There appear, however, to be numerous objections to the proposed substitution, among the principal of which are, the difficulty of procuring a sufficient supply of *pure* glycerine, the liability of the "plasma" to absorb moisture, and lose its original consistence, and the questionable effects of starch upon the skin in certain cases.—*Pharmaceutical Journal.*

149.—*Iodide of Lime.*—This preparation, made with one part of iodin and seven of lime, is recommended by Dr. Pidduck as superior to the iodide of potassium—in the comparative smallness of its dose; in its ready combination with the blood and tissues, manifested by its alterative effects; in not passing so quickly through the kidneys; in not producing gastro-enteric and vesical irritation: and in being nearly tasteless. Dr. Pidduck uses a solution of one drachm (containing eight and a half grains of iodine) in a pint of boiling water, which, when cold and filtered, is colourless and transparent. The iodine is found to exist in the solution in the form of iodide of calcium and iodate of lime.—*Ibid.*

150.—*New preparation of Bark—Quinium—(the Alcoholic Extract with Lime of M. A. Labarraque, of Havre.)*—The objects of the investigations of MM. Delondre and A. Labarraque, which have led to the adoption of the above preparation, were—

1. To find a preparation admitting of the use of all the cinchonas which contain, at the same time, quina and cinchonia in considerable proportion, and these are the most numerous. M. Soubeiran, in his course of pharmacology, observes that the association of cinchonia with quina presents, in many cases, important advantages. and that the two febrifuge bases are complementary to one another in a therapeutic point of view.

2. To obtain uniformity in the product by an easy and strict proportionment of the febrifuge alkaloids, thus practically applying, in the most useful manner, the discovery of Pelletier and Caventou.

3. To preserve all the useful products of the cinchonas by removing only the inert matters which interfere with the easy absorption of the active principles, and oppress the digestive organs.

4. To establish a proportion of quina and cinchonia, similar to that found in the cinchona, which the experience of all ages has shown to be the most efficacious, the bright red cinchona, which is at present scarcely employed, on account of its very high price.

5. To simplify operations, so that nothing may be lost, and so as to afford the best febrifuge at the lowest possible price.

The question of price is, in fact, very important in dealing with a dear medicine, the use of which ought to be continued, and which is most frequently necessary for the poorest country labourers.

The following is M. Labarraque's formula, as it has been adopted by the Academie de Médicine, and entered in their Bulletin.

Formula for the alcoholic extract of cinchona by means of lime.—Take cinchona barks of known composition; mix them in such quantities that the quina may be present, relatively to the cinchonia, in the proportion of two parts of the former to one of the latter.

Pound the barks; mix the powder with half its weight of slaked lime; heat the mixed powder with boiling alcohol until the barks are exhausted; collect the greater part of the alcohol by distillation; complete the evaporation. The residue is the alcoholic extract of cinchona by means of lime.

Seventy grains of this extract ought to yield, by the ordinary processes, fifteen and a half grains of sulphate of quina, and nearly eight grains of sulphate of cinchonia.

Pills of Quinium.—Two and a half grains of quinium in a pill represent one-third of their weight of febrifuge alkaloid. Thirty of these pills, which are sold for about fifteen pence, suffice in the majority of cases for the cure of an intermittent fever; from five to ten are given in the twenty hours, as far as possible from the approaching paroxysm. Half a glass of wine is taken after each dose.

Wine of Quinium.—This wine, which may be of great use as a tonic, as a febrifuge, and in preventing the return of obstinate intermittent fevers, is prepared by M. A. Labarraque by dissolving seventy grains of quinium in twelve times its weight of alcohol, adding thirty-five ounces of good white wine, and filtering. The wine contains about

twenty-three grains of the alkaloid in thirty-two ounces; the dose is from an ounce and a half to three ounces as a tonic, and from three to six ounces as a febrifuge.

The following are M. Bouchardat's observations in his 'Traité de Thérapeutique et de Matière Médicale,' on the comparative advantages of the sulphate of quina and quinium:—

"Whenever it is necessary to cut short a paroxysm surely and quickly, sulphate of quina will always have the superiority over all the other preparations of cinchona; none of them, not quinium itself, can be compared to it for this marvellous power. For this reason no substitute is to be found for it when we have to deal with essential paroxysms. But when it is our object to cure a fever of long standing, surely and without shocks to the system, quinium resumes its supremacy.

"In treating intermittent fevers in an hospital or in a healthy locality, remote from the foci in which these fevers have originated, the expectant system alone (as M. Chomel had so well established for the hospitals in Paris, and as M. Lavern has verified in those of Blidah) suffices in the great majority of cases: sulphate of quina is, under these circumstances, the most valuable adjuvant; it still shows in these special instances its incontestible superiority, in quickly and effectually relieving the patients from the intermittent fevers which tormented them.

"But it is when the patients remain in the localities, and under the conditions in which they have been attacked by the fever, that the remedy which subdues the disease without disturbing the system, in its turn resumes its superiority.

"It is in fever countries, in the midst of the causes which have given birth to the fevers, when these same causes persist, that all the advantages of quinium appear. Under such circumstances, M. Vahu has administered it in Algiers, H. Hudellet in Dombes, and I myself in several fever localities in the department of l'Yonne."

To this first testimony borne by M. Bouchardat, we hope soon to add further information on the subject. Quinium is being largely tried in the cliniques of M. Trousseau, at the Hotel Dieu, and of M. Aran, at the Hôpital Saint Antoine, and these experiments will furnish the opportunity of returning to this important question.—*Bulletin Général de Thérapeutique, and Dublin Quarterly Journal.*

151.—*Formula for the preparation of Anti-asthmatic Cigarettes*, by M. DANNECY, pharmacien, of Bourdeaux.—Some of the properties of stramonium and belladonna—which plants, when smoked, justly enjoy the reputation of relieving asthma, and which are employed with the most undoubted success in the treatment of neuralgia—exist also in plants abounding in nitrates. Thus I have seen patients who had experi-

enced great relief from the use of the leaves of borage and pellitory—plants containing, as is well known, much nitrate of lime.

The fault which almost all patients find with narcotic plants, smoked in pipes or in the form of cigarettes, is a copious production of smoke, which fatigues them, and sometimes excites cough—a symptom they are, on the contrary, employed to allay.

In order to obviate this inconvenience, I have added nitre to the leaves of belladonna and of stramonium, by watering these plants, dried and conveniently spread out, with a solution of nitrate of potash, in the proportion of three ounces of the salt to rather more than two pounds avoirdupois of the plants. It will be easily understood, that as this solution penetrates the entire vegetable tissue, the latter will, when dry, burn completely, without the formation of the pyrogeneous products above alluded to.

I have for many years prepared cigarettes according to this formula, and the benefit derived from their use by a great number of patients induces me to publish it, and to call the attention of practitioners to this mode of treatment, consisting in the smoking of narcotic plants combined with nitre.—*Dublin Hospital Gazette, March* 1, 1858, *p.* 75.

152.—*New Caustic Pencil, modifying the Tissues in different Degrees.—Double Salt of Nitrate of Silver and of Soda.*—M. Brun, in the 'Gazette Médicale de Lyon, proposes the use of the above double salt, in varying proportions, in order to obtain the modifying, in contradistinction to the caustic or destructive, effects of nitrate of silver upon the tissues, in cases in which it is necessary to confine this action to a circumscribed point—as, for example, in chronic inflammation of the urethra, where the disease is localized—as in irritations of the prostatic region, in spermatorrhœa, neuralgia of the neck of the bladder, &c.—in which injections would irritate the surrounding sound parts, and consequently dispose to an extension of the evil. For this purpose he has had pencils prepared of nitrate of soda and nitrate of silver, in varying proportions.

The following is the process adopted by M. Livernay, pharmacien, in the manufacture of the pencils :—Dissolve, on the one hand, a portion of nitrate of silver in a sufficient quantity of distilled water; on the other, a portion of nitrate of soda in a like quantity of water; mix these two solutions, and evaporate them to dryness. Place the residue in a capsule, and heat until it be fused; then pour the product into the mould, previously warmed and greased. When cold, a cylinder is obtained, representing a double salt of nitrate of silver and of soda.

This double salt is of a pearly-grey colour, if each of the salts employed was pure; it acquires a brown and blackish tint, if the fusion was too long continued, whether in consequence of the reduc-

tion of a small quantity of silver, or of the action of the fatty matter with which the mould was smeared.

The nitrate of silver and soda presents a crystalline and radiated fracture. It is very soluble in water and in boiling water. It is not more brittle than nitrate of silver, and it is more easily cast. Generally speaking, it presents the same characters.

These two salts may be combined in the most varied proportions.

M. Brun has used this double salt, with much advantage, for touching aphthæ of the mouth, for smearing the glans, in cases of balanitis, and for applying to a localised inflammation of the lower eyelid. He sums up its advantages in the following propositions:—

1. It better fulfils the object of the practitioner, where only a modification of the tissues is desired.

2. Its action may be increased or diminished, by varying the relative proportion of the two component salts.

3. It is more easily manipulated.

4. In no case is its use attended with danger.—*Bull. Général de Thérap.*—*Dublin Hospital Gazette, March* 1, 1858, *p.* 75.

153.—SELECTIONS FROM FAVOURITE PRESCRIPTIONS OF LIVING AMERICAN PRACTITIONERS.

By Dr. Horace Green.

Narcotics and Sedatives.—As palliatives in the treatment of all forms of neuralgia, the narcotics and sedatives are very generally resorted to by practitioners, especially during the paroxysms of the disease. When appropriately combined, their efficacy in these affections is more prompt and decided than when separately administered.

> R. Extracti hyoscyami, ʒss.; morphiæ sulphatis, gra. iij.; strychniæ, gra. ij.; capsici pulv. ʒss.; zinci sulphatis, gra. xv. M. Fiat massa; in pilulæ xxx. dividenda; capiat unam, ter quaterve in die.

In neuralgia, unattended by organic lesions, the above pills, exhibited every sixth or fourth hour, according to circumstances, will be found to be an excellent remedy. They have proved especially serviceable in that form of neuralgia in which the divisions of the fifth pair of nerves are so frequently involved. Not only in facial neuralgia, but in all cases where the disease has been caused by malaria, this combination may be administered, with confidence that the result will be favourable. The valerianate of iron, conjoined with the extract of hyoscyamus, is an excellent anti-spasmodic and tonic, and may be employed with great advantage for the treatment of chorea, and all the neuralgic affections of anæmic and debilitated females:

> R. Extracti hyoscyami, ʒss.; ferri valerianatis, ʒi. Fiat massa, in pilulas triginti dividendas; quaram date unam ter in die.

The valerianate of iron and the valerianate of zinc are two highly valuable remedies; and, were the therapeutic powers of these medi-

cines better understood by the profession, they would be much more extensively employed than they now are for the treatment of disease. The valerianate of zinc, Dr. Neligan says, is "one of the most valuable modern additions to the Materia Medica."

℞. Extracti hyoscyami, ℈iss.; zinci valerianatis, ℈j.; Fiant pilulæ xxx. Capiat unam bis terve in die.

The above pill is a valuable remedy in the treatment of facial neuralgia; and, indeed, is equally serviceable in all the nervous and neuralgic affections for which the valerianate of iron has been advised.

℞. Extracti belladonnæ, gra. viij.; camphori pulv., ʒj.; quiniæ disulphatis, ℈ij. Misce; Fiant pilulæ triginti.

These pills are very effective in the treatment of dysmenorrhœa. One pill may be exhibited every hour or two hours till the pain ceases. In females of a nervous temperament, when painful menstruation occurs, independent of organic lesions, these pills, administered as above directed, seldom fail of affording relief. In those cases of dysmenorrhœa where a tonic is not particularly indicated, the following are more appropriate, and are equally efficacious:—

℞. Extracti belladonnæ, gra. viij.; ipecacuanhæ pulv. gra. x.; zinci sulphatis, ʒss. Misce; Fiant pilulæ xxx., quarum capiat unam quâque horâ, donec leniatur dolor.

The following pills are highly recommended by an intelligent and experienced practitioner in the treatment of leucorrhœa occurring in anæmic and nervous females:—

℞. Extracti hyoscyami, ʒi.; argenti nitratis, gr. x.; cantharidis pulv., gr. xii.; quiniæ disulphatis, ℈ij. Fiant pilulæ xl. Sumat unam mane et nocte.

The same physician advises the subjoined formula as a combination that may be employed with great advantage as a diuretic and alterative in the treatment of cellular dropsy:—

℞. Extracti conii, ʒj.; cantharidis pulv.. ℈ij.; hydrarg. submur., ʒss.; ipecacuanhæ pulv., ℈j. Misce; Fiat massa; in pilulæ xl. dividenda. Cujus capiat unam ter quaterve in die.

A combination of the extract of belladonna with quinine has been employed very efficaciously in the treatment of gastralgia.

℞. Extracti belladonnæ, ℈ss.; quiniæ disulphatis, ʒj. M. Fiant pilulæ xxx. Sumat unam ter in die.

In that variety of gastralgia which is not unfrequently occurring in the course of chronic gastritis, we have derived the greatest benefit from the employment of the following pills:—

℞. Extracti hyoscyami, ʒj.; argenti nitratis, gr. x.; bismuthi subnitratis, ʒiss. Fiant pilulæ xl.; quarum sumatur una mane ac nocte.

The nitrate of silver, combined with some one of the sedative extracts, may be employed advantageously in the treatment of almost all

chronic gastric affections. In cases of obstinate chronic gastritis, or long-continued dyspepsia, we have found the following pills more efficacious than any other single remedy. They should be continued for several weeks:—

℞. Extracti conii, *vel* lupuli, ʒj.; argenti nitratis, gr. x.; capsici pulv., quiniæ disulphatis, aa. ℈ij. Misce; Fiat massa, in pilulas xl., dividenda. Capiat unam bis terve in die.

There is a troublesome and often an obstinate form of gastric irritability, denominated by the French *estomac glaireuse*, in which the patient occasionally ejects by eructation, a tasteless watery fluid, and which is accompanied often by a severe burning pain in the epigastric region. This variety of the disease is arrested with great certainty by the exhibition of either the preceding or the following pills:—

℞. Extracti lupulinæ, ʒj.; argenti nitratis, gr. x.; bismuthi subnitratis, ℈iss.; quiniæ disulphatis, ℈ij. Fiant pilulæ xl.; cujus sumatur unam bis terve in die.

In all forms of chronic disease attended with acute pain, as well as in all painful nervous affections, in the treatment of which, for any cause, full doses of opium are contra-indicated, the following combination may be administered with great advantage:—

℞. Extracti hyoscyami, gr. xv.; extracti stramonii, gr. iv.; extracti humuli, ʒj.; morphiæ sulphatis, gr. iss. Misce. Divide in pilulas xxx.; quarum capiat unam omni semi-horâ, donec leniator dolor.

Of the therapeutic effects of muriate of ammonia, when internally administered, but little is known, as in this manner it is but rarely employed in this country. With the German physicians it has obtained a high reputation as a good alterative, and a promoter of healthy secretions in chronic diseases of the mucous and serous tissues. It not only promotes the mucous secretions, says Dr. Sunderlin, but the cutaneous exhalations, and improves also nutrition and assimilation. Combined with a sedative and narcotic, we have found it highly valuable in allaying irritation, and in promoting expectoration, in the early stage of phthisis:—

℞. Ammoniæ muriatis, ʒss.; opii pulv., gr. x.; digitalis pulv., scillæ pulv., aa. ℈j. Misce. Divide in pilulas triginti. Sumat unam quaque sexta horâ.

Sleeplessness, occurring in hypochondria, hysteria, and, indeed, in all nervous affections, may be overcome with great certainty by the administration of the following pills:—

℞. Assafœtidæ, ʒj.; morphiæ sulphatis, gr. iij. M. Fiant pilulæ triginti, quarum exhibe unam vel duæ horâ decubitus.

The above pills—two to four exhibited daily—are very efficacious in arresting the dry cough which is occasionally consequent on disordered menstruation in nervous females.—*American Medical Monthly*.—*Edinburgh Med. Journal, Dec.* 1857, *p.* 535.

151.—OBSERVATIONS ON THE POISON OF THE UPAS ANTIAR.

By Professor ALBERT KÖLLIKER.

[This energetic poison has not been examined since the beginning of the present century. It is obtained from Borneo and Java.]

The following are the principal results which I obtained in my experiments with frogs, and I hope that they will not be deemed unworthy of notice by those who take an interest in the physiological action of poisons in general:—

The antiar, like most other poisons, acts from the intestinal canal, and from wounds; but it must be remarked. that it is much more energetic and rapid when introduced into a wound. The symptoms which are observed in frogs, in the latter case, are the following:— First of all the *voluntary movements* become less energetic, and at length cease totally. 30 to 40 minutes after the introduction of the poison (after 21m. min. and 1h. 21m. max.) Then follows a time in which the reflex movements may be caused by stimulating the skin; but this faculty also is lost very soon, viz., at from 50 to 60 minutes (at 33m. min. and 85m. max.); and the animals die without the slightest trace of convulsions or tetanic spasm. If now the frogs are opened, we find that, without any exception, *the heart has ceased to beat.* The auricles are dilated, the ventricle corrugated, rather small, and generally red, as if blood had been extravasated into its muscular parietes; but very soon the exposure of the heart to the air causes the ventricle to shrink a little more, and to become pale and stiff, as it in the state of *rigor mortis.* All interior organs, especially the lungs, liver, stomach, intestine, and kidneys, are gorged with blood, and in a state of great, especially venous, hyperæmia. The blood is fluid and rather dark, but soon coagulates when exposed to the air, and assumes a brighter colour. The lymphatic hearts cease to beat as soon as the reflex movements are lost. At the same time the nerves are yet found excitable, but their power is very low, and generally vanishes in the second hour after the application of the poison. The same must be said of the muscles, which contract very feebly when directly stimulated by galvanism, and in most cases lose their power totally in the second or third hour, and generally a little after their nerves. The *rigor mortis* begins early, sometimes in the sixth hour, and is generally well established at the eighteenth hour.

Amongst all these symptoms, to which we may add some signs of vomiting occurring now and then, there was none which attracted my attention more than the cessation of the movements of the heart, considering the great energy which this organ possesses in frogs; and I tried, therefore, before all, to elucidate the action of the antiar upon the heart. For this purpose I instituted a new series of experiments, in which I exposed the heart by the section of the sternum, before the poison was introduced into a wound of the back; and in this

way I easily got the result, that the heart ceases to beat *as soon as from the fifth to the tenth minute* after the introduction of the antiar; and so, that first the ventricle stops, and half a minute or one minute later, also the auricles. Now, as the frogs at this time are not at all deprived of their faculty to move, we may have the rather astonishing view of an animal, with artificially paralysed heart, which moves and leaps as freely as if nothing had happened.

The experiments just mentioned prove, *that the first action* of the upas antiar *is to paralyse the heart;* and I am therefore quite in accordance with Sir Benjamin Brodie, who, by his experiments on mammalia, came to the same result in 1812; whilst I cannot otherwise than disagree with Schnell ('Diss. de Upas Antiar,' Tubingæ, 1815), who assumes that this poison acts in the first place on the spinal marrow. Now this point fixed, the further question arises, whether the other symptoms mentioned, viz., the paralysis of the voluntary and reflex movements, and the loss of the irritability of the muscles and nerves, are only the results of the paralysis of the heart, or must be attributed to a specific action of the antiar. For the elucidation of this question, I found it necessary to study the consequences of the suppression of the heart's action on the organism of frogs, which I did in the same way as it had been done by others, especially by Kunde (Müller's Archiv., 1847,) viz., by cutting out the heart, or by putting a ligature around the base of it, so as to stop the circulation totally. The results of these experiments were in both cases the same, that is to say, the voluntary movements ceased in from 30 to 60 minutes, and the reflex movements after one or two hours. Hence it follows that these two symptoms of the poisoning with antiar are simply dependent on the paralysis of the heart caused by it. With reference to the irritability of the muscles and nerves, on the contrary, it is easy to show that the ligature or excision of the heart has not the same influence as the antiar, inasmuch as in the first case the muscles and nerves are found irritable six or seven hours, and more after the experiment has been made. Therefore it may be said that the antiar has a direct action on these organs.

These points once demonstrated, there remained one more question to elucidate, namely, whether the antiar acts only upon the muscles, or also upon the nerves. If we consider that the antiar undoubtedly paralyses the muscles, we may easily see that the loss of the excitability of the nerves possibly depends merely upon the impairment of the muscular contractility, and is therefore not real, but only apparent. With a view to determine the real state of things, I tried a third series of experiments—poisoning frogs in such a manner that the muscles of one limb were kept free from the influence of the poison. This was done in two ways:—First, by putting a ligature round the crural artery and vein of one leg; and secondly, by cutting through a leg entirely, after the ligature of its vessels, with the exception only of the ischiatic nerve. In poisoning frogs treated in one of these

ways, through a wound of the back, I found that, with the exception of the heart, the antiar acts in the first instance upon the muscles. This is shown by the fact, that in the second hour, at the time when the muscles of the poisoned parts have lost their irritability, the nerves of the sacral plexus in the abdomen still possess their full influence upon the muscles of the leg which has been kept free from the action of the poison. One might be inclined from this to conclude, that the nerves are not at all acted upon by the antiar; but this inference would be erroneous. In fact, the experiments just mentioned, if followed a little longer, show that in the third or fourth hour the sacral plexus also becomes inactive, at a time when the muscles of the non-poisoned leg are fully contractile. The antiar, therefore, paralyses also the nervous trunks, but later than the muscles.

From all these experiments, it seems to follow that the antiar is a poison which acts principally upon the muscular system (the heart and the voluntary muscles,) a conclusion, in favour of which I may further add, that the muscles and heart of frogs poisoned by urari (woorara curare) lose their irritability totally, and, in a short time, if antiar is introduced into a wound some time after the urari. If we consider that, as I have shown, (see 'Proceedings of the Royal Society,' 1856, p. 201,) the urari only acts upon the terminations of the nerves in the muscles, and does not affect the irritability of the heart and muscles at all, we may conclude, that a poison, which, as the antiar, is capable of paralysing the muscles after the urari, has really a direct action upon the muscular fibre.

The results of my investigation into the effects of the antiar upon frogs, are, therefore, the following:—

1. That antiar is a paralysing poison.

2. It acts in the first instance and with great rapidity (in 5 to 10 minutes) upon the heart, and stops its action.

3. The consequences of this paralysis of the heart are the cessation of the voluntary and reflex movements in the first and second hour after the introduction of the poison.

4. The antiar paralyses in the second place the voluntary muscles.

5. In the third place it causes the loss of excitability of the great nervous trunks.

6. The heart and muscles of frogs poisoned with urari may be paralysed by antiar.

7. From all this it may be deduced, that the antiar principally acts upon the muscular fibre and causes paralysis of it.

So much for this time. My experiments with the antiar upon warm-blooded animals have only begun, and I am not yet able to draw any conclusion from them. As soon as this will be possible I shall take the liberty to submit them to the Royal Society, together with the results of my experiments with the *upas teinté*, which poison I had also the good fortune to obtain through the kindness of Sir Benjamin Brodie and Dr. Horsfield. With regard to the antiar I

may further add, that experiments made independently, and at the same time, by my friend Dr. Sharpey with this poison, have conducted to the same results as my own.—*Proceedings of the Royal Society.—Dublin Hospital Gazette, March* 15, 1858, *p.* 91.

155.—*Chloroform in Poisoning by Strychnia.*—A lad, aged 15, swallowed by mistake a powder containing about two grains of strychnia. Dr. Jewett saw him thirty or forty minutes afterwards, and found him with a livid countenance, protruding and injected eyes, a full, strong, and irregular pulse, and his skin bathed in perspiration. Violent tetanic spasms, like the effect of shocks from an electrical battery, occurred in rapid succession. If they relaxed for a moment, the slightest touch of the surface, or presenting anything to the mouth brought them on again with redoubled violence. Chloroform, inhaled with difficulty at first, subdued the spasms in ten minutes, these returning whenever it was suspended. Partial anæsthesia was kept up for about four and a half hours, when it was finally discontinued. The recovery of the boy was rapid.—*Boston Journal.—Med. Times and Gazette, Jan.* 2, 1858, *p.* 19.

156.—*The Acid Sulphate of Zinc Paste.*—Amongst the new forms of caustic which the recent discussion respecting them has been the means of bringing into use, one of the most convenient appears to be the sulphate of zinc with sulphuric acid. The powdered salt is moistened with the concentrated acid, and applied in a paste form to the sore. It has been proposed, and successfully employed in one or two cases, by Mr. Henry Thompson. A great recommendation is, that its ingredients are always at hand, and easily manipulated. Its efficiency also appears to be great, and the resulting cicatrix soft and good.—*Med. Times and Gazette, Jan.* 2, 1858, *p.* 11.

157.—ON THE INFLUENCE WHICH LIQUOR POTASSÆ AND OTHER CAUSTIC ALKALIES EXERT ON PREPARATIONS OF HENBANE, STRAMONIUM, AND BELLADONNA.

By Dr. A. B. Garrod, Physician to University College Hospital.

[This paper was read before the Royal Medical and Chirurgical Society.]

The author first alluded to the frequent exhibition of henbane with liquor potassæ, and brought forward many proofs that such combinations were often administered. He also stated that the like mixtures were recommended by both medical and surgical authors. Dr. Garrod then proceeded to detail experiments, which demonstrated beyond doubt that the active principle of henbane was destroyed by liquor

potassæ and other caustic alkalies; and that such a combination was inert, both when topically applied, (as evidenced by the absence of power in causing dilatation of the pupil of the eye,) and also when internally administered. Similar observations were next detailed upon the preparations of stramonium and belladonna, and the results were found to be the same. It was, however, shown that the carbonates and bicarbonates of the alkalies were devoid of the property of destroying the activity of the plants. In some of Dr. Garrod's experiments as much as a drachm of the extract of henbane and an ounce and a half of the tincture were administered in combination with potash, without the production of the slightest symptom.

The results arrived at in the communication may be thus summed up:—

1st. Caustic alkalies, such as exist in liquor potassæ or liquor sodæ, entirely destroy the activity of henbane, preventing its action on the pupil when topically applied, and its influence upon the system when internally administered; and, combined with a proper amount of these alkalies, the largest doses of the preparations of henbane may be given without the production of any symptoms.

2ndly. The same influence is exerted by the fixed caustic alkalies upon belladonna and stramonium.

3rdly. The carbonates and bicarbonates of potash and soda produce no injurious effects upon the preparations of any of the three above named plants.

The deductions naturally to be drawn from these results are:—

a. That neither liquor potassæ nor any caustic fixed alkali should by prescribed with tincture or extract of henbane, as the virtues of the latter drug are thereby completely neutralized.

b. That when it is desirable to administer an alkaline remedy with henbane, either a carbonate or bicarbonate should be selected, which would probably be equally efficacious upon the stomach, if such influence be required, and certainly as efficient in altering the condition of the urine, and the mucous membrane of the urinary passages.

c. That the same precautions should be observed with regard to belladonna and stramonium, if at any time prescribed in conjunction with alkalies.

[The question being started by Sir Chas. Locock as to whether the caustic alkalies could be employed as antidotes to the poisons of henbane, belladonna, and stramonium, the following remarks were elicited:—]

Dr. Garrod thought the caustic alkalies never could be employed as antidotes in these cases, as the quantity given must be so large, or the strength so great, as to make it dangerous. There was, however, a certain antidote for henbane, belladonna, or stramonium. This was animal charcoal. If we took a solution of any of these poisons, and added but a small amount of animal charcoal, the effect on the system

was instantly destroyed, or rather neutralized. It required less to neutralize stramonium than belladonna, and less for henbane than stramonium. He narrated two cases in which, by accident, twelve grains and a quarter of an ounce respectively of the dried leaves of belladonna were swallowed. In both these cases animal charcoal was administered, and, though somewhat late, both recovered. He need not say that it was necessary that the antidote should be given before the poison had been absorbed into the system; if it had passed from the stomach, of course no antidote would be effective. In illustration of his statements, he related the following experiments, which he had repeated on several occasions. He gave a dog a certain dose of aconite, which destroyed him. He gave another dog forty times the quantity of the same poison, combined with a small quantity of animal charcoal. This animal was unaffected. In these experiments it was not necessary to have purified animal charcoal, as the common bone-black would answer all purposes.

In answer to questions from Drs. E. Smith and Barclay, Dr. Garrod said he was quite ignorant of the mode of action of animal charcoal upon vegetable poisons, nor could he explain why vegetable charcoal did not answer equally well. But such was the fact. It could be proved in this way: Take a certain quantity of vegetable charcoal, and add to it a solution of henbane, stramonium, or belladonna; it did not in any way influence the solution, and when it was applied to the eye, it would still dilate the pupil. If animal charcoal, however, were substituted for the vegetable charcoal, the solution would fail to dilate the pupil. Animal charcoal, it was known, had an intense absorbing power compared with vegetable charcoal. That animal charcoal did possess the property in question might be determined easily. If to a solution of quinine or morphia animal charcoal were added, it neutralized it; vegetable charcoal did not act upon it.

Dr. Marcet referred to the experiments of Dr. Hofmann, for the detection of strychnia in beer: these experiments had shown that the strychnia was taken up by the animal charcoal, which rendered it insoluble, and prevented its absorption when steeped in animal matter. This circumstance tended to prove that animal charcoal destroyed the poisonous effects of the vegetable alkaloids.—*Lancet, Dec.* 5, 1857, *p.* 577.

158.—*Sugared Sulphate of the Protoxide of Iron.*—It is very difficult to prevent superoxygenization of sulphate of iron, while, for various chemical and pharmaceutical purposes, it is of importance to have a pure sulphate of the protoxide. M. E. Latour, a chemist in the Algerian army, states that sugar will preserve this unaltered; while the salt so prepared is of a constant composition, and crystallises regularly. Dissolve, on the one hand, 200 parts of the sulphate in 100 of boiling distilled water, and on the other 50 of sugar-candy in 30 of

boiling distilled water. The two solutions are then to be mixed, rapidly filtered, and crystallized at a temperature of from 95° to 105°. The crystals are to be dried on paper, and closed up in a very dry bottle. By concentration additional water is driven off, and the crystals are found to consist of sulphate of the protoxide 54·57, water 32·50, sugar 12·93.—*Gaz. des Hop.*—*Med. Times and Gazette, Nov.* 21, 1857, *p.* 534.

159.—*New Remedy in Hemicrania.*—Dr. Jung stated at the Berlin Society of Medicine, that in the neuralgic pains known by the term migraine, or hemicrania, and especially when the infraorbital nerve is affected, he has found the aspiration of the following mixture an almost infallible remedy. Dissolve four grains of acetate of morphia in a few drops of acetic acid, and add ʒi½ of laurel water and ten drops of prussic acid. Of this mixture, ten drops (or in very excitable persons five) are to be mixed with an equal quantity of water, and strongly aspired by the nostril corresponding to the side of the pain, keeping the other closed. The relief is immediate; but the existence of a coryza is a contra-indication to the employment of the remedy.—*Bull de Thérap.*—*Med. Times and Gazette, Nov.* 7, 1857, *p.* 482.

160.—ON COUP DE SOLEIL, ITS CAUSES AND TREATMENT.

By Dr. G. S. Beatson, Staff Surgeon, 1st Class (half-pay.)

[Apoplexy and coup de soleil are not identical, or even including the same conditions of body, and consequently quite different treatment is required. True, there are symptoms of congestion of the head, or rather stagnation of the capillary circulation; but these are the effects of nervous depression from exhaustion. Dr. Gordon, of H. M. 10th Regt., says, that such is the rate of mortality in these affections, that out of 28 cases only one recovered. The author's experience does not agree with this; he mentions one particular instance:—]

Before daylight, on the 12th of April, 1852, the force destined for the capture of Rangoon landed from the fleet in the river, the stockades along the banks having been destroyed during the naval action the previous day. The force consisted, as regarded Europeans, of about 850 men of H. M. 18th R. I., 900 men of H. M. 51st K. O. L. I., 460 men (a wing) of H. M. 80th, and about 500 European artillerymen. This force remained for three days and two nights located on a dry open rice flat—we had no tents—exposed to, and utterly unprotected from, the blazing sun by day and the heavy dews by night. As may be imagined, the result of considerable fatigue under such exposure was the occurrence of a number of cases of coup de soleil.

My remarks will be, in a great degree, confined to the 51st regi-

ment, of which I was then the surgeon, and in which, on the first day, after the men had been subjected to great exertions in the attack and capture of the White House picket, an important outpost of Rangoon, we had probably not less than from eight to ten cases. In nearly all there were the same symptoms—to wit, unconsciousness, laboured respiration, and extreme prostration. In one—that of the serjeant-major of the regiment—as the insensibility was accompanied by stertorous breathing, with great congestion and suffusion of face and eyes—the medical officer who first saw him took a few ounces of blood from his arm; in this case I would have done the same—more, however, I believe, to satisfy a near relative, than from much hope of a beneficial result, for this was clearly a case of the more ordinary apoplectic character, in which large and rapid effusion produced an almost immediately fatal result. In the remaining cases—including two officers, one the lieutenant-colonel commanding—the lancet was not used, and all recovered. The treatment was to unfasten, as quickly as possible, the man's dress and accoutrements—the men had no stocks on; expose the neck and chest, get him, if possible, under the shade of a bush, raise his head a little, and commence the affusion of cold water from a bheestie's (water-carrier) sheep-skin bag, continuing the affusion, at intervals, over head, chest, and epigastrium, until consciousness and the power of swallowing returned. When this takes place, the affusion may be stopped, and a mild stimulant mixture given occasionally in small doses.

I will now mention two fatal cases which occurred that day, and which struck me very forcibly. Both were field officers of the Madras army.

One, a tall, and very stout man, a field officer of Madras artillery, after marching about a mile and a quarter, took up a position with his battery, which for some time he directed and worked with great energy. Suddenly he was seen to stagger, and would have fallen had he not been caught hold of by two of his own gunners. He was laid down insensible, and, when seen by the surgeon, he was bled. On passing shortly afterwards to see a wounded officer and some men of my own regiment, I was so struck by this officer's altered appearance—so altered that I scarcely recognized him—that I could not help remarking to the assistant-surgeon of artillery who was then with him, and whom I knew, that I feared the major was dying. He then told me he had been bled, but he (the assistant) thought without much benefit. Half an hour afterwards, as he could not find his own surgeon, he came to ask me to go and see Major O. I went at once, but, alas! only to find the poor fellow in articulo mortis, quite unconscious, his skin cold and clammy, and complete inability to swallow. He died shortly after.

The other case was the brigade-major of the Madras troops.

On moving on with the 51st, the companies in front were already engaged. I met a wounded sergeant returning to the rear. As there

was a wound on the scalp, and some hemorrhage, I stopped for a few minutes to examine and dress it, and to show him the field hospital to which he was to go. Just as I was leaving him he said, "I am am afraid, Sir, poor Captain B. is very badly wounded, but I think Dr. M. is with him." On hearing this I hurried on, but before overtaking the regiment, I saw an officer sitting under a bush, about twenty yards off the pathway. On coming close enough to see that it was the brigade-major of the Madras troops, I went towards him, thinking he might be unwell. He said, "Oh, no, but as I am rather tired"—he had had a good deal of running about, his horse not having been landed—"I am waiting for the 9th Madras, as I have an order for Major R." On hearing this I told him the 9th were coming up behind me, and I hastened on. Within little more than a couple of hours I happened to meet on the field the brigadier commanding the Madras troops—my own colonel—when he stopped to ask me if I knew that poor Major G. was no more.

On subsequent inquiry I learned that Major G. had gone on to meet the 9th; that on reaching the regiment he was scarcely able to stand or to articulate; that in a short time he became insensible and was bled. Within, I believe, an hour, or, at any rate, an hour and a-half *post*, if not *propter hoc*, he was dead.

I confess to some reluctance in mentioning these cases, as I may seem to be reflecting on the treatment employed. This is not my intention, but as I believe that bloodletting in this disease, as a general rule, is a most injudicious and injurious practice, I mention these cases to show that it is far from being a successful one.

Having, however, mentioned these cases, I think it fair to mention another, that of the brigadier commanding the artillery, who was knocked down about the same time as Major O. In this case venesection was also practised, the surgeon thought with marked relief, certainly with complete recovery; but still, I cannot help thinking, judging from other cases, that the recovery would have been as complete, and probably more rapid, had depletion not been used, for many of the cases treated without bleeding were quite well in the evening, and at duty the following morning.

In the case of which the particulars of the treatment are mentioned—in the paper above alluded to—Dr. Gordon remarks that there was a desire for drink indicated on the part of the patient, and that cold water being given to him, he drank it with avidity. I knew a case of this disease (coup de soleil) in which a draught (not a large one) of cold water was permitted, as soon as the patient had recovered his consciousness and was able to swallow. He had scarcely taken it when he was suddenly seized with a sudden and severe convulsive fit. Was this an accidental sequence or a consequence? I believe it was caused by the sudden impression of cold, which, in the existing state of depression, acted like a blow on the great ganglia behind the stomach. In similar circumstances I have always borne that case in mind. It proved fatal.

All these unmistakeable symptoms of depression, and the favourable results of the non-depleting treatment, convince me that in this disease the congestion of head and capillary system will not be relieved by lowering remedies. That the disease is one of depression—affecting in some way probably the great nerve of organic life—seems to be clear from the fact that it seldom occurs except after fatigue and exhaustion under a tropical sun, aggravated, no doubt, by whatever tends to obstruct the freedom of the venous circulation of head and neck, and to produce such obstruction I know nothing—short of hanging—more effectual than the old leather stock, and tight coatee collar.

The important question which remains to be answered is, Can anything be done to diminish the tendency to this and other diseases among European troops during active service in tropical climates? I reply, that temperate men, *properly dressed*, with tolerably regular meals, in some degree acclimated, and not overworked, can, as the records of Indian service prove, do good work in most parts of India, at all hours of the day, and at all seasons of the year. But, if they are overworked, and if that overwork be long continued, and if exposed night and day without tents, although I do not doubt that even under such circumstances they will achieve glorious results, still I believe they *must* do so at a fearful cost; and if the mortality before Delhi has been happily small compared with that in General Havelock's force, it was chiefly from the former force being engaged in position where they no doubt had good food, tolerably regular meals, and tents to shelter them, while the latter gallant band must have been too often in totally different circumstances.

What the clothing for European soldiers in the tropics should be, there can scarcely, I humbly think, be two opinions; first, as regards the head, it should be a light woollen forage-cap, with a good peak, and protected by a good turban, the curtain coming well down to protect back of head and neck, and well round on each side to protect the temples—the turban need not be white; for the neck, a light black neckerchief—no pattern of stock is admissible on active service under a tropical sun. A good loose tunic or short frock or blouse of red serge or other light woollen texture, and blue serge trowsers, loose round the hips and *not* loose round the ankles. A good deal has been said about white clothing for the troops in India; white smock-frocks and trowsers and straw hats are very proper for men passing through the tropics on board ship, or for cantonment life in India, but on service they are utterly useless, and pith hats—although excellent non-conductors and most light and comfortable, are too fragile and easily damaged by rain to be useful for general wear. The men should be advised and urged to wear flannel, and should never move, even in the hottest weather, without their blanket—a good, stout, brown blanket—for if subjected to sleep in the night air without tents and without blankets, sickness must result. Indeed, it is difficult for those who

have not felt it, to realise the intense feeling of chillness produced by sleeping, without some extra covering, in the night air, even at the hottest season of the year, in a tropical climate; and if we merely looked at the reading of the thermometer, it would be difficult to account for it. For instance, at Prome, in the upper part of Pegu, the thermometer was never in the cold weather at night lower than 47 or 48 degrees, generally about 50 degrees, and still, the feeling of cold was so intense that I have seen the whole regiment when turned out at night—although in their great coats—shivering on parade.

There is only one other subject which I will touch on, as it is one on which great difference of opinion seems to prevail, viz., what will be the probable effects of active service and its consequent exposure on the large European force which is on the shores of India? That, under proper management, there is any reason for undue apprehension I cannot for a moment think; but that the mortality, independent of the casualties of war, will exceed—far exceed—the ordinary mortality of cantonment life, cannot, I fear, be for a moment doubted; for the records of even the last Burmese war will force us to this conclusion. It would be unfair to take the experience of the first Burmese war, for every one who has studied the records of that expedition must have the conclusion forced on him that it was starvation and scurvy, not climate, which killed the 70 or 80 per cent. which perished in 1824-25-26. Nor will it do to take the campaigns of the Suttledge and Punjaub, for these campaigns were fought in the cold season, in an almost northern climate, and were all over in a couple of months. But taking the experience of the last Burmese war, during which, with all our discomforts, we had nothing—thanks to steam and to the care and forethought of Lord Dalhousie—under all the difficulties of active service to complain of, unless it was now and then unnecessarily bad biscuit and during the cold weather insufficiency of blankets for the men. Taking then the experience of this war, we find that in the three Queen's regiments which served throughout the fifteen months of its continuance, viz., from the 1st of April, 1852, till 30th June, 1853, the actual number of men who died *in Pegu* were 18th R.I. 316, 51st K.O.L.I. 243, 80th 280, total 839, or close on 30 per cent.—as, including drafts of recruits, the actual numbers who served in these three corps amounted to from 2900 to 3000 men; besides which casualties by death the numbers invalided amounted to several hundreds more. Indeed, shortly before the announcement of peace, and while it was supposed to be doubtful, I estimated the effective strength of 51st who would be able to take the field at something under 580, non-commissioned, rank and file, out of an aggregate number who had served in Burmah of 1006. So that it will be seen that deaths do not in any way fully indicate the number rendered non-effective, in other words, the numbers required to keep a force up to its original strength; for by deaths, as will be seen above, we had lost considerably fewer than either of the other two corps, although I

think the strongest, and equally exposed. Whether the ratio of sickness as well as mortality was less in 51st I cannot say, but I think it probably was, and that if compared, the ratio of deaths to numbers treated would be found nearly the same in all.

But, it may be said, all this may only prove that Pegu is a more deadly climate than India proper. That Pegu is a deadly climate to Europeans exposed to its full influence, I readily enough admit—and the ratio of sickness and mortality among the officers was nearly equal to that of the men; but that it is a bit more unhealthy than most of the districts which in all probability, will be the scenes of active operations in India I no more admit than I am prepared to admit that, because an army perished on the heights of Sebastopol, the Crimea is a bit less healthy than England; and for this reason, that, as was the case with the English army after the fall of Sebastopol, the troops in Pegu, at least the 51st regiment, allowing a reasonable time for the men to have regained their health by rest and care, became as healthy, indeed more so, than we had ever been at Madras. To be sure we had lost, either by death or invaliding, all our weakly and sickly men, and there are in every regiment numbers of men, who, if they escape the fire of the enemy, will go through what would kill a great many others ten times over.—*Med. Times and Gazette, Dec. 19, 1857, p. 624.*

161.—ON THE ACTION OF ANÆSTHESIA.

Dr. Detmold remarked that members would recollect that, about the year 1847, he called the attention of the academy to certain propositions, which he then made, proving quite conclusively that carbonic acid gas is the efficient agent in causing anæsthesia. The carbonic acid may be given as such, or one of its chemical ingredients may be so administered, that, finding in the blood the other constituents of this compound, carbonic acid gas is generated, and anæsthesia, to a certain extent, is the result. Thus we may administer oxygen in large quantities, in the form of nitrous oxyde (protoxide of nitrogen, or laughing gas), which has all the chemical reactions of oxygen, but is much more soluble in water and the serum of the blood than pure oxygen, and, therefore, is much more readily taken up. This compound meeting with the carbon of the blood, carbonic acid gas is formed in large quantities, with the production of anæsthesia to a certain extent. Or we may, on the contrary, administer the carbon, as the oxide of carbon or any of the hydro-carbons, alcohol, the ethers, &c.; in this case the blood again furnishes the other constituent of carbonic acid, oxygen, and anæsthesia is again the result.

The stage of excitement corresponds to the period of combination of these elements and the formation of carbonic acid gas. If the gas is administered as such, there will be no stage of excitement, but if the

constituents combine slowly, and the gas is generated in limited quantities, there will be a corresponding state of excitement. Thus, in the stupor of drunkenness, carbonic acid is exhaled in normal quantities, but as the stupor passes off, large quantities of that gas are exhaled. The venous state of the arterial blood, during anæsthesia, is another proof that carbonic acid is being generated in large quantities. If it is true that in *post-mortem* examinations of those dying while under the influence of chloroform, bubbles of air are found in the heart and blood-vessels, it is highly probable that this air is carbonic acid gas, unless, perchance, it has entered the circulation by some mechanical lesion.

The only means, in his opinion, of any avail in restoring a patient from profound or fatal anæsthesia, is artificial respiration, or such other means as, by exciting reflex action, will restore respiration, and thus hasten the elimination of the carbonic acid gas. It has been recommended in threatened and apparent death from anæsthesia, to resort to the inhalation of oxygen or nitrous oxide. Reasoning from the premises which he had given, such remedies would be in the highest degree dangerous. To satisfy himself in regard to this fact, he had made numerous experiments upon animals, and invariably found a fatal issue hastened by administering oxygen.—*N. Y. Jour. of Med.*, May, 1856.

At a subsequent meeting, Dr. Detmold favoured the Academy with a written exposition of his views of the rationale of the action of chloroform, sulph. ether, and nitrous oxide, the three agents employed for the purpose of producing anæsthesia. He attributes the action of all of them to the production of carbonic acid gas *in the system*. The first two supply the carbon, which absorbing oxygen from the blood, and the last supplying oxygen, which absorbing carbon, in either case carbonic acid is the result, which by its action on the living organism produces anæsthesia. This theory, though not absolutely susceptible of demonstration, is yet apparently based on a logical foundation, and finds a seeming confirmation in a number of well known facts.—*Med. and Surg. Reporter.—Amer. Edin. Med. Journal, Dec.*, 1857, *p.* 537.

162.—ON THE USE OF BINIODIDE OF MERCURY, IN COMBINATION WITH THE RAYS OF THE SUN, FOR THE CURE OF GOITRE.

By Dr. F. J. MOUAT, Inspector of Gaols and Dispensaries, Bengal.

In the districts about Motiharee, Segowlee, Bothiah, Bhagoha, and on to Goruckpore, indeed along the whole line of the Teraie, the goitre is so prevalent that it can scarcely be an over-estimate to state that in many localities, one individual in ten is afflicted with this horrible disorder.

In some cases the tumour attains a certain size, and passes into a chronic state, without serious inconvenience to the person affected; in others, it increases rapidly, and, at the end of a few years, after becoming an enormous excrescence, terminates in loss of intellect in some cases, and in others in death.

In the cold weather of 1854-55, Captain Cunningham, second in command, 12th Irregular Cavalry, began to apply the biniodide to the goitre in the following manner:—

An ointment was prepared according to a formula, as follows:—

Melt 3 lbs. of lard or mutton suet, strain and clean; when nearly cool, add 9 drachms of biniodide of mercury, taking care to make the powder fine by trituration in a mortar.

Work in the mortar until no grains of red are apparent in the ointment, and put in pots for use, taking care always to keep both powder and ointment from the rays of light.

Use as follows:—

About an hour after sunrise apply the ointment to the goitre with a spatula made of ivory, or thin, broad, smooth bamboo, quantity according to size of tumour—rub it well in for at least ten minutes. Let the patient then sit with his goitre held well up to the sun, and let him remain so, as long as he can endure it.

It is probable that about noon he will suffer severe pain from the blistering effect of the ointment, although no pustules are raised on the skin. About 2 p.m., the ointment should again be applied with a very careful and tender hand, and the patient should be dispatched to his home, with orders not to touch the ointment on any account with the hand, but to allow it to be gradually absorbed, which absorption will be complete on the third day.

This treatment is quite sufficient for an ordinary cure. Should the case be a very bad one, the patient is ordered to return next year for the removal of what may remain of the tumour. Except in goitres of the very largest size this is seldom necessary. After the application of the second year no goitre has been known to continue.

The patients begin to come about the middle of November, and continue to the end of March; after that time the sun's rays act so violently on the medicine, that it is not advisable to apply it.

The cures effected have been very numerous. On my arrival at Segowlee, I was glad to join Captain Cunningham in this good work; but with him rests all the credit of having established it.

The cases are not now so numerous as they were in 1855. At that time 500 or 600 were not unfrequently treated in a single day; a small charge of two pice for each cure was levied for some time, in order to make the people set more value on it; but as this seemed to check some patients, it was discontinued.

Until lately no exact account of the numbers treated has been kept;

but since Captain Cunningham commenced, up to the present time, it cannot have been less than 60,000. Many come from a very great distance, Goruckpore, Mozufferpore, Mulaye, but the cases in the vicinity are decidedly less numerous—in fact, the disorder is being extinguished. In no case, except one, have we failed to make a complete cure during the second year.

It appears to me that the rays of the sun, either by some chemical action on the ointment, or by causing its more rapid absorption, have much to do with the cures effected: but I am about to make the experiment of treating one man by night before a large fire, and comparing the case with one of a similar size and standing, treated in the usual way.

By this means I hope to ascertain how much of the cure depends on the action of the sun's rays, whether as regards chemical properties or the absorbents of the skin.—*Dublin Quarterly Journal, Nov.*, 1857, *p.* 500.

163.—*Cocoa-Nut Oil Ointments.*—The cocoa-nut oil is a more eligible body for the formation of ointments than lard, keeping much better, not staining the linen, and admitting of more complete absorption. To render the oil of commerce fit for pharmaceutical employment, it is in general sufficient to liquefy it at a moderate temperature, and strain it through linen. But if it retains its peculiar odour too strongly, and is of too yellow a colour, it may be purified by digesting it for some hours in a water-bath, with some coarsely powdered vegetable charcoal, and filtering it while warm through paper. The following are some of the formulæ that have been tried with success:

℞. Iod. pot. ʒj. ol. cocos, ℥j.

℞. Ext. bellad. ℈j., ol. coc. ʒiij.

℞. Veratrini, gr. iij., ol. coc. ʒiij.

℞. Sulph. quin. ℈j., ol. coc. ℥j., ol. rosar. gt. x. (very useful in pityriasis capitis.)

℞. Chlorof., ol. coc., āā ℥j. (of great service in neuralgic and rheumatic pains, rendering the chloroform more fixed, and its action more durable.)

℞. Ol. terebinth., ol. coc. āā ℥j.

℞. Hydr. ox. rub. gr. iv., ol. coc. ℥ij.—*Omodei's Annali.—Med. Times and Gazette, Jan.* 16, 1858, *p.* 69.

164.—SULPHURIC ACID AND SULPHATE OF ZINC AS A CAUSTIC AGENT.

By Henry Thompson, Esq., Assistant Surgeon to University College Hospital, &c.

[The action of sulphuric acid as a caustic depends upon its powerful tendency to combine with the elements of water contained in the

organized tissue, so that the carbon is left free, forming a black charcoal-like mass. As it is desirable that the acid should be mixed with some substance to render it more manageable, this must not be such as will furnish the elements of water, or the acid will be thereby weakened; for this reason saffron, as first suggested by Velpeau, is ineligible.]

Nearly two years ago I observed this effect, and it occurred to me that we might economise the power of the acid by employing carbon in some simple form—common pulverised charcoal, for example—as the material with which to make the acid into a manageable form for use. Accordingly, so long ago as the summer of 1856, Mr. Squire, of Duke-street, made this paste for me, and I employed it successfully, with considerable advantage, for limited surfaces requiring a powerful caustic. Nearly a year ago, Ricord, of Paris, published this same combination as the best form of caustic for the treatment of chancre, stating it to be superior to nitric acid or the Vienna paste, which latter he had previously used.

In this case the thickening material of the paste at least does not impair the caustic power of the acid, but it appeared desirable to find, if possible, a material for thickening which should not be merely inert, but which should bring with it fresh caustic power, so as to produce a combination possessing the greatest possible destructive force. This suggested itself to me in the form of the dried sulphate of zinc, in powder, itself a caustic of considerable strength, and well known to have been employed by Professor Simpson, especially for the destruction of some growths from the uterus. By mixing this with strong sulphuric acid, a paste of sufficient consistency is produced, and one that is endowed with exceeding power as a caustic. I employed it first in July last, in the case of an epithelial growth springing from the outer canthus and neighbouring temple of a woman aged seventy, in the Marylebone Infirmary. I deemed it unadvisable to remove this tumour, which was the size of a walnut, by the knife, because it was very broad, and because it encroached upon the upper eyelid especially. After six applications, some of them slight and involving only small portions of the tumour, it entirely disappeared, and had cicatrised soundly in September. At no time was there any hemorrhage whatever. I exhibited the woman at the Medical Society of London in October, a report of which appears in this Journal of November 14th. The patient was asked on that occasion, by some of the fellows present, on which side the tumour had existed, so complete had been the removal and so slight was the resulting scar. I may add that she remains perfectly well at the present moment.

One advantage of this combination consists in the ease with which it is prepared, and in the fact that its constituents may be found in any chemist's shop or surgery. The ordinary sulphate of zinc is to be dried in an oven or sand-bath, so that the water of crystallization is driven off, and a whitish powder remains. Enough of this is to be

added to some strong sulphuric acid, in order to make a semi-fluid mass of consistence sufficient to prevent its running beyond the spot on which it is placed. The mixture should be kept in a stoppered bottle, and be applied with a small glass spatula or rod. Before using it, the surrounding parts should be protected by a thick layer of cerate or firm ointment, so as to form an embankment limiting the surface to be destroyed, and a layer of the caustic may be made upon this of about the eighth or tenth of an inch in thickness. This is allowed to remain. As in the case of other caustics, I believe, the pain is less in the superficial than in the deeper diseased tissues. In the case mentioned, but little suffering followed the first application, but in subsequent dressings, as deeper and more highly organized tissues were reached, the suffering was severe. Incisions were made through the first slough to admit of the access of the caustic to these parts. There appears to be reason to believe that the amount of pain caused by all caustic applications is less the result of any specific property of the caustic itself, than of the degree of sensibility existing in the part or structures attacked. Other things being equal, there is little doubt that the more powerful and rapid the action of the caustic, the less is the pain inflicted. On this account, as well as on other grounds named, the paste in question has appeared to me to deserve the attention of the profession, for use in those instances in which its employment is to be regarded, as in the case cited, a better method of procedure than ablation by the knife.—*Lancet, Jan.* 9 1858, *p.* 34.

165.—*Liquor Opii Sedativus.*—This drug may be largely used in cases of strumous ophthalmia in children, properly reduced in dose, being not more prone to disagree, while much more reliable than either tincture of hyoscyamus or paregoric. Diarrhœa is held to be one of the main indications for its use, and if the bowels are constipated it is never given, at least until free purgation, by scammony and calomel, has been first effected. In cases in which the intolerance of light is great, the bowels irritable, and the child very restless, a full opiate at night, with bark in the day. is often very quickly effectual. The form of bark usually prescribed to children is the liquor cinchonæ, prepared by Battley, but for adults quinine itself is held to be much more efficient. The chlorate of potash in full doses, as an alterative saline, in certain cases of pustulo-strumous ophthalmia, has recently come into much favour. A detailed examination is, however, being made as to its merits, and as to the class of cases for which it is best suited, and at present it would be premature to speak dogmatically.—*Med. Times and Gazette, Jan.* 9, 1858, *p.* 36.

166.—*Turpentine as a Detergent.*—We noticed in use the other day at the Dreadnought the oil of turpentine as a wash for stumps,

&c., which may have got coated with plaister or other adhesive material. It is, we believe, also used at several other hospitals for the same purpose. The part is freely washed with tow dipped in turpentine. It does not appear to unduly irritate, but restores a healthy glow to the cutaneous surface, and the patients describe its effects as being pleasant rather than otherwise.—*Med. Times and Gazette, Jan.* 9, 1858, *p.* 34.

167.—ON THE THERAPEUTICAL EFFECTS OF GALVANISM.

By John Grantham, Esq., Crayford, Kent.

Recently I have witnessed several cases of exceedingly painful affections of the feet, the sequence of rheumatic inflammation, with diminished and unequal power in the muscles of the leg and foot, also decreased temperature and tumefaction of the cellular structure, a condition not yielding to either general or local treatment with or without rest, resisting those principles of the practice of medicine which are now considered to be "rational." It is to the "rational practice of medicine" alone we ought at this time to direct our whole attention in contending against the many empirical systems so liberally paid for by the opulent; and I would here remark, 'tis a pity so many causes do arise to produce distrust in the minds of the public in respect to the many solid truths known and practised by our profession, especially by those who have kept their minds alive to all the improvements; but unfortunately for us only to be acquired after spending many years in unceasing labour, amidst almost every hindrance.

Galvanism is an agent used by the empiric; and why? Because the Profession have not made themselves practically acquainted with its utility in the treatment of diseases. My late friend, Dr. Marshall Hall, in his "Synopsis of Diastaltic Nervous System," page 76, says:—"There is a question in reference to the application of galvanism to the animal frame of the most intense interest. A current cannot pass without inducing an electrogenic state; the current may be applied and changed. It has been designated the 'Alternative Voltaique,' from its discoverer, as seen in the lower animals. The change of the current I am now satisfied is often attended with the most beneficial results, in lessening the irritabilities of the muscular fibre." Dr. M. Hall also puts the following question:—"What is the most probable good or therapeutic effect of galvanism? It may excite the failing heart in asphyxia or syncope, and the uterus in inertia of this organ. It may exercise the nervous and the muscular systems, and so restore them in some measure from atrophy and debility. It is in this manner useful in the paralysis remaining after the organic cause of the disease may have been removed. It may be useful in paroxysmal paralysis, in paralysis of the facial nerve from cold, in some hysteric forms of paralysis, &c."

Case 1.—Richard Aspin, aged 34 years, (printer,) sixteen weeks ago was attacked with lumbar pain, which continued three days. After leaving the lumbar region, it extended to the left hip and foot, attended with great coldness of the limb, inability to walk more than fifty yards without acute pain, completely incapacitating him from working as a block-printer. The locality in which he resides is damp, and surrounded with malarial exhalation. He is a man of temperate habits. After going through treatment both general and local without any benefit, he commenced the application of galvanism to the limb, by passing the current alternately from the spine to the foot, and from the foot to the spine, from a battery of 24 cups, containing circular plates of zinc and copper. In seven days the temperature of the leg returned to its normal standard, and the pain entirely abated, so as to induce him to resume his employ; but, in consequence of so early a return to labour, the pain returned on the third day. He again underwent the application of galvanism, with rest, or rather moderate walking, without inducing fatigue. After ten days a full return of power and cessation of pain was maintained. He is now, at this date, September 1st, 1857, to use his own expression, "never better in my life." This case is illustrative of the potent effects of galvanism; so much so, that, unless witnessed, the reader could scarcely credit the superiority of this agent over every other means in the removal of pain, and also in the restoration of muscular power.

Case 2.—James Manser, aged 30 years, a ship's carpenter, stated that about seven years since he had been the subject of rheumatic fever. In the meantime, whenever he has been exposed to damp with fatigue, he has had pain and swelling in both feet, which have frequently disabled him from duty, and only mitigated with rest, aperients, the mineral acids, hot baths, iodide of potash, and counter-irritation, but without any permanent relief, especially during the last three years. In September of this year he commenced the application of the galvanic current through the feet, passing it from the heads of the fibula to the feet, and, after seven days' application of the galvanic current, he felt so far relieved from pain and swelling, as to enable him to return to his duties on board an Ostend steam-vessel.—*Med. Times and Gazette, Nov.* 7, 1857, *p.* 473.

168.—*Bichromate of Potash as an Astringent.*—Mr. Lloyd, in some remarks to his class the other day in his Syphilitic Ward at St. Bartholomew's, spoke very highly of the good effects which he had obtained from solutions of the bichromate of potash used in cases requiring astringents. We understand that the same remedy is much employed at the Liverpool Infirmary, for the removal of fœtor from sloughing wounds, &c. The power of the solution as a preservative fluid is well known. Mr. Lloyd stated that he had begun with five grains to the ounce, but increased it to a drachm. In one case of very chronic

leucorrhœa, in which the lips of the os uteri were swollen and spongy, it had effected a complete cure, after many other remedies had wholly failed. It is being used at St. Bartholomew's as an application to warts, &c.—*Med. Times and Gazette, Jan.* 9, 1858, *p.* 34.

169.—*Opium in Uterine Hemorrhage.*—[The following case which occurred in the practice of R. F. SNAPE, Esq., of Bolton-le-Moors, well illustrates the value of a moderate dose of opium in producing uterine contraction during labour, in cases of deficient power from exhaustion or fatigue.]

I was summoned, Feb. 27, at midnight to attend Mrs. P. I found that the liq. amnii had escaped without any pain, at 3 p.m., on the 25th; in about eight or ten hours she suffered considerably from spurious pain, which she recognised, and did not in consequence send for me. Owing to this pain she obtained very little sleep or rest from the time of the escape of the waters; and when I saw her she was much wearied from sleeplessness and fruitless pain. I found the os uteri dilated to the size of a five-shilling piece, and very dilatable, and the vagina in a favourable condition for a speedy termination of the labour. After waiting a time, and finding the pains decrease in strength and frequency, I gave her a full dose of secale: the effect was *negative.* Another hour having elapsed, and the pains less satisfactory, I gave her twenty-five drops of laudanum in a little water. In ten minutes a vigorous pain occurred; this was rapidly followed by three others, and the child was born. Another pain expelled the placenta, and the uterus contracted firmly. Mrs. P. has had no pain since; she is, in fact, quite well.—*Med. Times and Gazette, March* 6, 1858, *p.* 254.

170.—*Injection of the Knee-Joint with Tincture of Iodine.*—Mr. ERICHSEN adopted, in a case of chronic effusion into the knee-joint, under his care in University College Hospital, a few months ago, the treatment by injection of iodine. Although so highly praised by Velpeau and other French surgeons, this practice has not hitherto found many English medical men bold enough to pursue it. Mr. Callaway, of Guy's, we know entertained, from what he had seen of it in Paris, a very favourable opinion of its merits; but he did not, we believe, ever actually do it. Mr. Erichsen's patient was very well suited for it, the hydrarthrosis having existed for a considerable period, and the general health being good. Much treatment had also been previously adopted, with only very transient benefit. The injection was performed on Dec. 2, about six ounces of amber-coloured fluid having been previously withdrawn by the canula. Only a drachm of the compound tincture was thrown in, but the whole of it was allowed to remain. A certain degree of pain, &c., was present in the joint for

about a week afterwards, but it was not at any time excessive. The man left the hospital, very much benefited, six weeks after the injection.—*Med. Times and Gazette, March* 6, 1858, *p.* 247.

171.—ON THE TREATMENT OF ENLARGED BURSÆ.

By William Coulson, Esq., Surgeon to St. Mary's Hospital.

The treatment of enlarged bursæ has given rise to much difference of opinion and practice. Reasoning from analogy, we might conclude that inflamed bursæ should be treated as inflamed synovial membranes, and indolent bursæ as encysted tumours. To a certain extent this may be true ; but a great deal depends on the circumstances of each case. It is evident that active inflammation must be subdued by active means, but when this has been done, or when the tumour is naturally indolent, what treatment should we pursue? The principal methods recommended are—1. Rest and pressure. 2. Counter-irritation, mercurial or iodine frictions, &c. Abundant evidence exists to show that these and other similar means generally fail to effect a permanent cure. 3. Excision of the sac. In cases of small consolidated tumours this practice may sometimes be adopted ; but extirpation of the bursæ is a severe operation ; it has been followed by considerable inflammation, great disturbance of the health, and in some cases by death. 4. The bursal tumour, again, may be treated as a chronic abscess. It may be laid freely open by incision, or the contents may be evacuated, and iodine injections thrown in to modify the action of the lining membrane. 5. The practice, however, which I adopt myself, and which I would recommend, is more simple than any of the preceding ; yet I have found it effective. The enlarged bursa is punctured with a grooved needle, such as is used for exploring tumours and swellings of a doubtful character. After evacuation of the contents, pressure is applied by means of soap-plaster and bandage ; this is renewed from time to time, and puncture of the sac also repeated if necessary. The result is generally a permanent and safe cure. Even in cases where the bursæ are inflamed, and the skin over them red, I should prefer the puncture now noticed to making any incision into the tumours or supposed abscesses.—*Lancet, May* 8, 1858, *p.* 454.

172.—THE TREATMENT OF NÆVUS BY INJECTIONS WITH TANNIC ACID.

[Mr. Haynes Walton recently treated a vascular tumour in the orbit by an injection of the solution of tannic acid. The following case also occurred in his practice at St. Mary's Hospital.]

A subcutaneous nævus was observed at the root of the nose in an infant eight months old. It was treated by iodine paint and cold lotions without benefit, and the increase induced the parents to send

the child to a London hospital. There was now, five months later, a tumour as large as a marble, soft, capable of being much reduced by pressure, and covered by perfectly healthy skin. Mr. Walton at first applied a ligature subcutaneously, but, unsuccessfully; indeed this seemed rather to hasten growth. Then he resolved to inject with tannic acid. An aperture was made at the base of the tumour with a narrow tendon knife, which was moved about with the view of breaking down some of the texture, in order that the injection might have sufficient contact with the blood, and produce that peculiar coagulation which this agent is capable of effecting. The nozzle of a small syringe filled with a solution of the salt, in the proportion of a drachm to an ounce of water, was passed into the wound, and the fluid quietly thrown in till the nævus was well distended. Mr. Walton laid much stress on the gentleness of injecting, and the propriety of ceasing directly that the tension of the tumour was apparent, lest extravasation should happen. The hardness that quickly ensued proved the rapidity of the coagulation.

The special advantages of the plan are its potency and safety. The action of the tannic acid on the blood is certain, a peculiar coagulation being at once produced. There is no risk of sloughing, an occurrence that is apt to ensue when the muriated tincture of iron is used, and when it is due to the free acid it contains. The child attended at the hospital for a week, and then left for the country, there not being yet any apparent alteration. It was seen at the end of three weeks, and a very considerable reduction was manifest, and to the touch there was a sensation of lumps beneath the skin. Mr. Walton saw the child for the last time just six weeks after the operation, when there was no appearance of a tumour, and except that the integuments at the spot were a little hard, there was no trace of the former disease. No one, he says, would have told by mere ocular inspection that a nævus had existed.—*Lancet, May* 8, 1858, *p.* 459.

173.—TREATMENT OF BOILS AND CARBUNCLES.

By Buxton Shillitoe, Esq., 34, Finsbury-circus.

I have lately, in common with every one else, had a great many cases of boils and carbuncles. I have tried almost all the ordinary methods of treatment, and find that if a carbuncle or boil be seen in its earliest stage, it may almost always be dispersed, or prevented from acquiring any great size. My plan is to order a thick solution of the aqueous extract of opium, of the consistence of treacle, to be painted on and around any suspicious spot that may arise. This soon dries, forming a coating, which requires renewing three or four times a day. Generally twenty-four hours' application is sufficient to arrest the further spread of the inflamed spot. I then order a plaister of equal parts of soap, mercury, and opium, spread on thick leather, to be

placed on the spot. If there is a pustule, I evacuate it, and leave a small hole in the centre of the plaister to allow of the escape of any matter, or if painful, for the application of the opium and poultice. When it is desirable to poultice, I take care that the plaister is large enough to protect the surrounding skin, and I discontinue the poultice as early as possible. In this way, with early attention to small spots and a limited amount of poulticing, combined with ordinary care in diet, occasional aperients and tonics, of which last I prefer bark and nitric acid, I seldom find any difficulty in preventing the successive crops of boils now so common.

When called in at a later period, or if in spite of treatment a boil or carbuncle will have its course, I think strong nitric acid to be the best application, using it freely two or three times, removing the dead tough slough before each application, supporting the margins with the plaister, and poulticing freely. The beneficial action of the opium depends upon the local influence which it exerts upon the capillaries, small arteries and nerves, lessening pain, favouring exudation from the engorged vessels around the central spot, while nearer the circumference it hinders the spread of the zone of active congestion, counteracting the stimulating effect of the inflamed spot upon the surrounding nerves and blood-vessels. This is shown by its lessening the throbbing, heat and redness, limiting it to the spot alone from which a small deep core has frequently to be removed, the surrounding parts soon recovering, if supported by the plaister.

The use of the plaister is obviously to give support to the inflamed vessels, and to protect the surface from the atmosphere. and is useful in all cases, and in all stages.—*Med. Times and Gazette, March 6, 1858, p.* 254.

174.—ON THE ACTION OF GALVANISM UPON THE CONTRACTILE STRUCTURE OF THE UTERUS, AND ITS REMEDIAL POWERS IN OBSTETRIC PRACTICE.

By Dr. F. W. Mackenzie.

(Read before the Royal Med. and Chir. Society.)

[In the present divided state of opinion as to the effective and remedial powers of galvanism upon the gravid uterus, further investigation of the subject seemed to the author most desirable. Two points of a preliminary nature require first to be decided before the agent can be satisfactorily employed in midwifery:—1st. The nature of the influence exercised by it upon the contractile structure of the uterus; and, 2ndly, The best mode of applying it so as to obtain the full benefit of such influence. The author has instituted some experiments upon the gravid uterus of the lower animals, in which the organ was exposed and the exact influence exercised by the galvanism was observed.]

From these experiments it was shown that galvanism exercises a remarkable and peculiar influence upon the uterine fibre, and it further appeared after many observations that this was most powerfully exercised when the galvanic current was directed longitudinally through the uterus from the upper portion of the spinal cord in a sustained and a continuous manner. The local application of galvanism to the uterus was less effective; individual shocks produced no appreciable effect upon it, and a current directed transversely through the organ produced only a partial contraction of it in the direction of the current. Guided by the information thus obtained, the author had employed galvanism in the manner suggested by these inquiries in several very critical cases with remarkable success. The first referred to was that of a lady who had had repeated floodings in connexion with an early abortion, owing to an imperfect separation and expulsion of the ovum. In this every available means had been tried to stimulate the uterus and control hemorrhage without success, and the patient's condition had at length become highly critical. In this emergency a sustained current of electricity was directed longitudinally through the uterus from the upper portion of the spinal cord, and under its influence the cervix uteri became relaxed, and expanded after the first application, and uterine action set in after the second, which was followed by the expulsion of an organised membrane, upon which the hemorrhage ceased, and the patient rapidly recovered. The second was a case of placenta prævia, in which several alarming hemorrhages had occurred before labour had commenced. In this a sustained current, applied in the manner stated for six hours, not only prevented any further hemorrhage, but so accelerated the dilatation of the os uteri, that the hand was readily introduced, and delivery completed with safety to the patient, although the child, from the extensive separation of the placenta, was still-born. In a third, excessive hemorrhage had occurred in a primipara in the last month of pregnancy, and, as the placenta was felt to be attached to the cervix uteri, it was thought desirable to bring on delivery. With this view a sustained current was applied for three hours; the hemorrhage was almost immediately arrested, and the labour had advanced so rapidly, that in a few hours afterwards it was completed by the birth of a living child. The author referred to other cases, in which he had successfully employed galvanism in obstetric practice, and, with reference to those related, submitted that they appeared to him to warrant the three following conclusions:—

1. That a sustained current of electricity of moderate intensity, passed through the gravid uterus in the manner described, exercises a remarkable influence in increasing the tonicity and contractility of the uterine fibre.

2. That in such increased tonicity or contractility of the uterine fibre, so excited and sustained, we have a powerful and reliable means of moderating and controlling uterine hemorrhage, whether of the

accidental or unavoidable variety, and of simultaneously accelerating the dilatation of the os uteri and the general progress of the labour.

3. That such sustained current of electricity may be continued for a lengthened period, when the object to be attained requires it, without any appreciable pain or inconvenience to the mother or danger to the child.

Mr. Foster said he was present at one of the cases referred to by the author, and went to it with a prejudice against the use of galvanism in the manner described, believing that it could have no effect over the contraction of the uterus, and in preventing hemorrhage in placenta prævia. The result, however, satisfied him that Dr. Mackenzie's experiments deserved the careful attention of all who followed obstetric practice. He had never seen anything that controlled the hemorrhage of placenta prævia so perfectly.—*Med. Times and Gazette, March* 6, 1858, *p.* 256.

175.—*Belladonna in Incontinence of Urine.*—We have had occasion lately to see two cases among Mr. POLLOCK's out-patients at St. George's Hospital, in which belladonna has been administered in incontinence of urine with the same favourable result as we have had so often occasion to notice in former cases. The first patient was a boy aged 10, who had suffered for a long time from incontinence of urine, without any visible cause. All the usual remedies had been tried, but with no good effect. He made water constantly in the day-time, and very frequently at night. He was sounded, but no stone was detected; and the urine, on examination, appeared quite healthy. He was ordered one-twelfth of a grain of extract of belladonna three times a day, and five grains of calomel and scammony twice a week. The belladonna produced an immediate effect, marked improvement being noticed even after the first dose. After rather more than a month's attendance, he was discharged quite cured.

In the other case, the incontinence followed the operation of lithotomy, performed some months ago by Mr. Pollock. Here, also, the same treatment was effectual in relieving the symptoms; but the patient was not quite cured when we last saw him, although there seemed little doubt of his speedy recovery.—*British Med. Journal, March* 27, 1858, *p.* 239.

176.—*Citrate of Iron and Strychnia, a New Therapeutic Agent.*—For a long time back a therapeutic agent of very efficient properties has been used with considerable success, at the Royal Free Hospital, in cases of dyspepsia of an atonic character, by Dr. O'CONNOR. He has also found it productive of great benefit in similar conditions depending on functional derangement of the uterus. In these cases it acts as an emmenagogue when all other remedies have failed, and it has a powerful effect in tranquillizing the excitement of the nervous

system. This preparation is a citrate of iron and strychnia, the dose of which is about 3 grains three times a-day, to be taken immediately after a meal. There is now a case of chorea in the hospital under the care of Dr. O'Connor, immediately brought on by the patient being frightened by a thunder-storm in August last, since which time she has without any intermission of the symptoms, being a sufferer. In this case the citrate of iron and strychnia has been only used for a few days, and already with marked benefit. The case is one of interest, and we purpose at a future time giving it in detail. The preparation which Dr. O'Connor uses is made by Mr. Bastick, of Brook-street, Grosvenor-square.—*Med. Times and Gazette, Feb.* 27, 1858, *p.* 220.

177.—THE CHEMISTRY OF CAUSTICS.

By William Bastick, Esq., London.

Of all the applications of chemistry to the sciences of medicine and surgery, there is not one which has been so little studied or written upon as the Chemistry of Caustics. Having recently had my attention called to this fact, while making some investigations into the nature of caustics, and especially their mode of action, I propose to lay briefly before those interested in this subject, the conclusions arrived at, however fallacious the labours of future and abler investigators may prove them to be.

It seems to me that caustics, with reference to their action, may be divided into two great classes, namely, one which comprises those which merely kill or destroy the vitality of the living tissue; and the other, which includes those which not only destroy the vitality of the living tissue, but decompose or dissolve the tissue whether dead or living.

As examples of the former class, may be enumerated chloride of zinc, sulphates of copper and zinc, bichloride of mercury, &c.; and as examples of the latter class, may be mentioned caustic potash, nitrate of silver, manganese cum potassa, chromic acid, &c.

Another distinctive feature of these two classes is, that while the latter destroys and decomposes the living or dead tissue, the former, having killed the living tissue, acts afterwards as a powerful antiseptic or preservative of it.

It is not within my province to point out to those extensively employing caustics, to whom these facts may be new, the importance of bearing in mind this distinctive feature between the two classes of caustics, when selecting the description of caustic to be employed in any given case.

Although caustics may be conveniently divided in the manner described into two principal classes, these classes can be further subdivided into many others, because the mode of action is frequently distinct in each individual case, whatever the final result may be on the living tissue.

To illustrate this point, the modes of action of caustic potash and chromic acid may be cited. When the living tissue is placed in contact with caustic potash, the destruction of its vitality ensues by the potash dissolving its albuminous and fibrinous components. In fact, acting in the manner described by chemists for obtaining the various protein substances from organic matter. Of course I only allude to the leading features of the action of caustics in this instance as well as in others. When the same tissue is treated, chromic acid, instead of obtaining a solution of the protein compounds of the tissue, and thus destroying its organised structure, the tissue is destroyed by a slow process of combustion; or, in other words, it is oxidized at the expense of the oxygen of chromic acid, by reason of the facility with which that acid parts with its abundant oxygen when in contact with organic bodies. The manganese with potash acts in a similar way as a caustic to chromic acid, but in consequence of the permanganic and manganic acids which it contains being in combination with the base potash, its action is more controllable and persistent. It may not be here out of place to mention what appears to me to be a practical advantage that the destructive caustics, if I may so term them, possess over the conservative ones. In doing so I beg to state, once for all, that I offer my opinions on such points with great diffidence, knowing that chemistry is not medicine or surgery, but only one of their instruments. The practical advantage is this:—When the surgeon desires the removal of a diseased tissue by caustics, if he uses a conservative caustic he kills the tissue, but has to effect its separation by a further process of suppuration, &c., whereas, if he employs a destructive caustic, the two processes are in simultaneous action, and the desired result is consequently more speedily accomplished.

Nitrate of silver is essentially an oxidizing caustic, but its action is much slower than that of chromic acid or manganese with potassa, from the circumstance that it does not so readily part with its oxygen, and it forms an insoluble compound with organic structures which acts as a preventive to its continuous powers as a caustic, by forming a sort of impermeable coating on the tissue to be removed. I am aware that this action is an advantage where hemorrhage is to be feared.

The exsiccated sulphate of zinc and copper, when employed as caustics, act like chloride of zinc by their powerful affinity for water. But when the vis vitæ is destroyed by such affinity, their further action is that of strong antiseptics, thereby greatly, if not entirely, retarding the natural disruption of tissues which have ceased to possess vitality. Bichloride of mercury, and in fact, all mercurial caustics possess a conservative action by their strong affinity for the albuminous components of organic structures with which they form compounds of definite character.

Nitric and sulphuric acids belong to the class of destructive caustics; the action of the former is that of the oxidation of the tissues,

while the latter owes its power as a caustic to its power of extracting the elements of water from organized bodies, behaving like the exsiccated salts previously mentioned, with which it is sometimes judiciously combined to prevent the spreading of the acid beyond the parts to be destroyed by reason of its fluidity when uncombined.

Chloride of gold has been extensively employed generally in combination with other caustics in some of the continental hospitals. When placed in contact with organic matter, this salt is reduced to a metallic state similar to the action of nitrate of silver; but as far as my experience goes, it is inferior as a caustic to the silver salt, because of the large quantity of oxidizing material which is set free when the organic matter is treated with nitrate of silver. Among the conservative caustics, arsenic and its compounds will find its proper class; for although arsenic is poisonous to living tissue, it is a powerful antiseptic agent. It forms no combinations with dead or living tissue, and only a feeble one with albuminous matter; and from this cause it must be regarded in a chemical point of view as a very inefficient caustic.

Chlorides of antimony and iron, which have been used as caustics, exhibit a mode of action similar to chloride of zinc. The very feeble action of the latter must in some cases be its principal recommendation.

It will be evident from the previous statements that chemistry will supply us with an indefinite number of caustics; for it is clear that whatever decomposes or combines with living tissue sufficiently to kill it, is, to all intents and purposes, a caustic. It is equally manifest that, while it is the essential condition of every substance professing to be a caustic, that it should kill the living tissue, it by no means follows that all caustics performing this condition should destroy or dissolve away, as it were, the tissue when no longer possessing life, for this latter property belongs to a distinct class of caustics.

I am aware that I have not noticed the so-called irritant action of caustics; but in explanation I reply that the consideration of this action is foreign to the purpose of this communication, and moreover, is a subject not within the province of the chemist.—*Med. Times and Gazette, April* 10, 1858, *p.* 371.

178.—THE DIAGNOSIS AND TREATMENT OF SYPHILIS IN ITS PRIMARY FORMS.

By H. Thompson, Esq. (Read before the Harveian Society of London.)

Mr. Thompson commenced by demonstrating the importance of deciding promptly upon the nature of the primary forms of syphilis, in relation to treatment and prognosis. He stated that our knowledge of syphilis had greatly advanced during the last few years, thanks to numerous observers in this country and abroad; but that, to Ricord the merit is pre-eminently due of having defined the great laws which its phenomena exhibit. Without giving his adhesion in

every respect to all the dicta of that illustrious observer, the author of the paper asserted that a careful examination of the subject compelled him to declare his conviction, that on almost, if not on all important points, his doctrines were supported by the phenomena of syphilis as presented in this country.

Primary syphilis was defined as a specific disease communicated by a virus of which the earliest manifestation is a chancre; and secondary syphilis, as a constitutional affection, which, excluding hereditary transmission, originates always from a chancre, and manifests itself by characteristic symptoms, which follow, with more or less regularity, a certain order of evolution.

Two distinct varieties, and two only, of chancre, were stated to exist—the soft or non-infecting chancre, and the indurated or infecting chancre. Either of these might be attacked with phagedæna or sloughing, although much more commonly the former; but these conditions are the result of external circumstances, and not of any inherent quality in the sore itself. He laid down as a principle, that, on seeing a primary sore in the early stages, we might, in five cases out of six, positively state to the patient at the outset a distinct prognosis as to the occurrence of secondary symptoms, or the contrary, without risk of error; and that, in consequence, we might select the appropriate treatment at once, and pursue it with confidence.

Mr. Thompson defined the external characters of the indurated or infecting chancre; contrasted them with those of the soft or non-infecting chancre; pointing out that the first was *invariably* attended with indurated, painless lymphatic glands in the groin, which attested the nature of the sore after the latter had disappeared; and stated that constitutional syphilis was certain to follow, sooner or later; the induration of the sore itself being, in fact, the first sign of the systemic affection. Next, he described the characters of the soft chancre, which was not necessarily, nor indeed most commonly, associated with any bubo at all; but if so, the bubo was inflammatory, and would suppurate. In this case, it was almost certain that no secondary symptoms would follow.

He then considered the sores of a doubtful character; that is, those respecting which it was difficult at first to determine the nature; and showed how the two varieties might, nevertheless, in most cases, be distinguished by attention to known causes of error.

The treatment of primary syphilis in these two forms then succeeded. The employment of caustic (which, if sufficiently powerful and applied early, would prevent constitutional infection) was strongly recommended. The potassa cum calce, on the whole was regarded as the best. In the soft chancre, which was met with three or four times as frequently as the indurated chancre, there could be no occasion for mercury or iodine, as it was a purely local, not a constitutional disease. Local astringents or antiseptics, and, if it was slow to heal, fifteen or twenty grain doses of the potassio-tartrate of iron twice

or thrice a-day, formed the best treatment. Such formed the bulk of the cases so frequently reported as examples of syphilis cured without mercury; in fact, whatever the treatment of these sores, no constitutional symptoms would manifest themselves. In the well marked indurated chancre, small doses of the iodide of mercury, such as three-quarters of a grain to one grain, guarded by about two grains of Dover's powder, appeared to suit more generally than any other form: the gums to be but very slightly touched, and the patient carefully preserved from salivation; this condition to be maintained for a considerable period. Where any intolerance of mercury by mouth was exhibited, inunction or fumigation to be substituted. Nothing, however, could be more obvious than the good effects of mercury in these truly infecting sores and early constitutional symptoms, provided its administration be kept within the limits recommended.

A tabular form exhibiting the characters and tendencies of the two varieties of chancre, by way of contrast, was presented for the purpose of diagnosis, and showing the salient points of the subject at a glance.

Diagnostic Characters of the Two Varieties of Venereal Sores.

SOFT OR NON-INFECTING CHANCRE.	INDURATED OR INFECTING CHANCRE.
Anatomical Characters.	*Anatomical Characters.*
Form, rounded, often irregularly so.	Form, rounded.
Edges, sharp, well defined, as if cut with a punch; rather overhanging, not adhering closely to subjacent tissues.	Edges, sloping, not sharply cut; hard, sometimes a little elevated, closely united with subjacent tissues.
Surface, flat, but irregular, "worm eaten"; often with yellowish or greyish matter adhering.	Surface, hollowed, or scooped out, but smooth as if varnished; often greyish at the centre.
No induration of tissues around, unless caused by caustic or other irritant; in which case the thickening is not defined in its limits, but shades off into the surrounding tissues, and has more or less the aspect of inflammatory action.	Induration, well defined, incompressible, like a cup of cartilage let into, or set upon, the tissues beneath, and movable over them; no inflammatory areola. Usually makes its first appearance between the fifth and tenth day; never after the twentieth. Generally long survives ulceration.
	Induration varies in degree somewhat with the situation, but when slight is nevertheless always defined.

Pathological Tendencies.

The secretion is contagious, purulent, and plentiful, hence these chancres are rarely single; often, perhaps most commonly, multiple, one giving rise to another. It is usually slow to heal, has a tendency to spread; and is liable to take on phagedænic action.

The soft chancre appears, from the records of practice, to appear with a frequency about four times as great as the indurated chancre.

Pathological Tendencies.

The secretion is scanty rather serous than purulent, and is not very readily inoculated, Hence the sore is usually single, rarely multiple, and if so, the sores appear simultaneously.

It is indolent, but less so perhaps than the soft chancre. Rarely takes on phagedæna.

Either sore propagated by inoculation invariably produces its like.

Characteristic Gland Affection.

In many cases (but not in the majority), the inguinal glands are affected; in which case, one gland, usually, rapidly inflames and suppurates, and an open bubo is the result. The pus, at first, is inoculable, and capable of producing a soft chancre.

Characteristic Gland Affection.

It is *invariably* followed by slight swelling and marked induration of the inguinal glands on one or both sides (the sore being on the genital organs); usually several glands are affected; they are hard, incompressible, and roll under the finger, are painless, and do not inflame or suppurate.

Except in rare instances from over exertion, in scrofulous subjects, &c.; but then the pus is not specific and not inoculable.

The induration of the gland coincides in time with that of the chancre itself.

The primary sore having disappeared, or being denied, the gland-induration is an invaluable sign for purposes of diagnosis.

Prognosis.

The well marked soft chancre is always a local affection, and *does not affect the system;* and no "specific" treatment (mercury and iodine) is required.

Prognosis.

Constitutional syphilis will certainly declare itself sooner or later. Mercury will retard, modify, or prevent the evolution of secondary symptoms.—*British Medical Journal, March 27,* 1858, *p.* 249.

179.—ON THE TREATMENT OF NERVOUS HEADACHE.

By Dr. John Addington Symonds, Consulting Physician to the Bristol General Hospital.

[But little faith is to be placed in such remedies as henbane, hemlock, lettuce, and hops, as remedies for the relief of acute pain. We are over cautious in our treatment of this affection from exaggerated fear of inducing congestion.]

If the attack is to be met by narcotics, we should try first one or two grains of opium, or an equivalent of morphia combined or not with calomel or blue pill. In some persons the opium acts more kindly in conjunction with camphor; in others, with a saline draught. But if opium or its alkaloid cannot be resorted to, there are other efficient anodynes which may be appealed to; such are aconite, belladonna, and cannabis indica. Of these, aconite has been in my hands that which may be most relied on: the difficulty is really in its power. There must be enough, but it is more easy to pass from what is sufficient to what is excessive, and therefore dangerous, than in the case of any other narcotic. A little too much opium, we know the worst of. Even with belladonna it is only temporary delirium, or blindness that we have to dread; but a very slight excess of aconite puts the patient in peril by the depression of the heart's action. It may not be amiss to relate an example of the caution requisite in the use of this powerful drug. For a lady who had for many years suffered intensely from attacks of headache, I prescribed the alcoholic extract. The remarkable relief which she derived from this medicine made her anxious to have it always at hand. The dose to which she had become accustomed was half a grain in a pill, and she was allowed to repeat the dose once after two hours if the pain persisted. She took a supply of such pills with her into the country, and she was in the habit of resorting to them as occasion required, with great benefit. But one day, when she was engaged to a dinner party, at some distance, she was attacked with her usual headache a few hours before the time of going out. She hoped to be enabled, by the use of the pills, to keep her engagement. Not finding so much relief as usual, she took a second pill, and was much better; but just before stepping into her carriage she determined to make quite sure of a pleasant evening, and therefore swallowed a third pill. Before she could arrive at her friend's house, she was taken frightfully ill; the carriage was stopped at a cottage by the road-side, and for many hours she was in great danger, with all the symptoms of aconite poisoning.

I usually direct a certain dose of Fleming's tincture (from one to two minims), to be repeated after two or three hours if needful; or one-eighth or one-sixth of Morson's alcoholic extract. In some cases the effect is marvellous. The instances, however, in which I have seen most good result from aconite have been those in which there has been a more chronic species of pain—a constant soreness or disposition to

ache. In these a small dose administered thrice daily has been found very salutary, whether combined with tonics or taken singly.

In these cases, again, I have known very great comfort ensue from the use at bedtime of a combination of salines, nervines, and ether. Thus in one of my patients whose brain seems to be always on the verge of aching, such a mixture is always at hand, and rarely fails to avert a threatened fit of pain, though it would be inadequate to the suppression of it when fully formed. Chloroform inhaled will relieve or remove a headache; but its effect is too transient to be of much avail. I have given it by the stomach in its pure form, or as it exists in chloric ether, and sometimes with immediate dissipation of the pain; but the direct anodyne operation is uncertain, and I have sometimes doubted whether the good effects might not be due quite as much to the rubefacient action on the mucous membrane of the stomach, as to the narcotic influence on the sensorium.

The external use of anodynes might be oftener appealed to than it is. When discussing sympathy in relation to the production of pain, I adverted briefly to impressions of temperature on the scalp, and indirectly to anodyne applications, and I expressed a strong opinion that the media of communication are the vascular nerves. I know not in what other way to explain the relief afforded to an aching brain by the application of a pad, soaked in a mixture of warm water and laudanum, to the forehead and temples. This measure is preferable to the employment of stimulating liniments, which, besides the inconvenience attending their use, may do harm by exciting the capillary circulation of the scalp, and by sympathy that of the interior.

In some cases great alleviation is derived from the use of sinapisms, or other rubefacients applied to the spine; but it will be generally found when this is the case, that a certain amount of vascular disorder is added to the nervous pain, either as an effect of this, or as the concomitant result of a common cause. But when the pain is more purely nervous, and occurs in a person of high neurotic sensibility, the irritation of the cutaneous nerves may add to the distress instead of lessening it.

But in addition to the decided narcotics, we have a useful class of agents, conveniently grouped under the term nervines. Thus, there are, in the first place, the dietetic nervines, tea and coffee, which are invaluable in the minor degrees of nervous headache, especially when it has been the result of fatigue, either mental or bodily. There is, however, some danger in their use, for they not only dispel the pain in question, but they also recruit the nervous power in the brain so thoroughly as to tempt the patient to return too quickly to the very exertions which have done the mischief. But I am not acquainted with any agents which equal these substances in the power of removing the headache, without leaving inconvenient results. And as their physiological operation is so purely cerebral, restoring the intellectual faculties, and ministering to the sensation of personal well-being, as

well as lessening any sad emotions, we have here an additional presumption, were any required, that this headache is seated in the nerves which are immediately related with the molecular action of the brain.

The medicinal nervines are also of use, and chiefly valerian, camphor, castor, and the fetid gums. Of these valerian is at once the most efficient, and the most easily taken, whether as an infusion, or in the form of volatile tincture. But these substances are less beneficial as remedies for an attack of pain than as correctives of the neurotic sensibility which gives rise to them.

This latter treatment may be said to be prophylactic to the attacks, and curative of the diathesis, and it is of far greater importance than that which merely contemplates the removal of the present pain. It is superfluous for me to write of the methods of correcting this diathesis by air, diet, and exercise, or by removing those faults in the digestive organs, or in the uterine system, which have induced it. Nor shall I discuss all the various tonic and other medicines conducive to this end which have been recommended. I shall confine myself to those of which I have had most experience, and which have best prospered in my hands.

There are two which stand far in advance of the rest—quinine and arsenic. Iron will do much when there is an obvious deficiency of the red corpuscles of the blood, in conjunction with the diathesis in question, but its value is not so specific as that of the remedies which I have named.

The *modus operandi* of Quinine in the cure of ague and of nervous pain, is not without mystery. Were it only a remedy for the cure of that remarkable series of phenomena comprehended under the name "intermittent fever," a comparatively simple hypothesis might present an adequate key. One might begin with presuming that the malarious poison in the blood induces a certain change in the fluid, analogous to the process of fermentation, and that after the eliminative action of the skin, the blood returns to its former condition, with retention of enough of the poison for producing in a definite period a like process, the very poison being, in all probability, capable of multiplication in the blood; for were it not so, how could the disease remain for months after removal from the malarious source? Admitting such a theory of the disease, it would not be difficult to append to it the hypothesis, that quinine destroys the poison, or prevents it from developing that change in the composition of the blood which eventuates in periodical fever. But quinine is as certain a remedy to the neuralgia which follows a catarrhal attack, or that which is the consequence to a slight blow on the head; cases in which there is no reason for presuming a chemical vitiation of the blood. If the former hypothesis would fit the facts or the philosophy of ague, it will not account for the cure of neuralgia.

The operation of this substance, indeed, is so unequivocally exerted

on the functions of nervous substance, and with no direct proof of its affecting the composition of the blood, that one would be rather tempted to frame an hypothesis which should bring the cure of ague within the scope of a neurotic process.

In an admirably reasoned argument by Mr. Paget, in a lecture on the rhythmical action of the heart, strong grounds were offered by that eminent physiologist for the belief that rhythmical actions depend on processes of molecular growth, occupying definite periods of time. If this be true of physiological phenomena, is it not likely to be applicable to pathology? In those neurotic affections of periodical recurrence, neuralgia, asthma, epilepsy, &c., may it not be that a portion of the nervous substance in some central part suffers an error of growth, which occupies a certain period, perturbs the natural function of the part for a certain time, and ceases, till a new growth has been developed, and runs its course in like manner. I have a patient who every day is the subject of the following attack, and has been so for the last eleven years, without one day's intermission. At 4 p.m. she is seized with clonic spasms of the left arm and on the left side of the neck, which last for three hours, and then subside. No mental impression, no opiates, no tonics, no baths, no diet, no change of air, no galvanic currents, no chloroform inhalation, nor whatever the wit of any doctor has hitherto devised, has succeeded in preventing the attack. Once by chloroform inhalation I succeeded in cutting short the paroxysm; but the remedy was worse than the disease. The only remedy which has lessened the violence and duration of the fits is quinine in large doses taken every day. Great hopes were built on arsenic; but the mucous membranes were intolerant of this agent.

Now the periodicity of such an attack is perhaps no greater a mystery than the periodical evolution of nerve-force in the nerves of the heart, if we presume the growth in an abnormal form of a portion of the nervous centre related with the motor nerves in the subject of this singular excitement. Tendency to recurrence of like action is a well-marked attribute of nervous substance, and implies the ready establishment of new forms of growth and action; and it lies at the root of habit in sensation, motion, and thought. Whether in health or in disease, new changes of life and action in the nervous system easily become permanent. Were it not so, what would become of progress and education?—A morbid habit is the continuation of a casual abnormal action. A strong impression is made on the nerves of the heart, and the rhythm of the pulsations is changed: from that time the change may continue. The nervous structure retains its new mode of growth and action: it is an excess of that tendency which belongs to nervous substance in general. An infinitesimal molecule of brain undergoes a change in the production of a thought; and from that time forth, so long as its life endures—in other words, as long as memory is intact—the molecule grows in the same form, undergoing an everlasting series of births and deaths, but maintaining

its identity by its perfect similarity of reproduction. And so, as I have said, a new phase of being and action may be impressed on a portion of the nerve centres connected with sensation and motion, and may become permanent. When this occurs easily—when new modes of action are more easily impressed on some than on other individuals, such persons have a neurotic diathesis, a liability to nervous disorder.

A morbid habit is the perpetuation of what should be a temporary state and action; and it argues a diseased tendency to assume so readily a new condition.

A medicine which breaks the habit may be a substance that nips the new growth, compelling the part to return to its former development. It is like a new element introduced into a soil, destructive of particular organisms. Such may be the operation of quinine, arsenic, zinc, copper, and the vegetable nervines.

I am not so ambitious as to endeavour to construct a new theory of intermittent fever, but I strongly surmise that in the progress of discovery there will be another reaction from the modern excess of humoralism towards a modified and improved neurological pathology, and that new forms of molecular growth in nervous tissues, evolving abnormalities of nerve-force, or new forms of nutrition in secretory tissues, will be discovered, deriving, perhaps, their pabulum from altered blood, but which altered blood will be only one of the series of changes.

Allowing, however, that intermittent fever consists mainly in toxæmia, it is not difficult to understand how in the districts where the poison is rife, there have been noticed in different seasons alternations of that disorder with purely neurotic affections. What, after all, is blood disease? Is it a mere chemical change, such as is effected in an inorganic fluid by the introduction of a new element? Chemical change there may be, but there must be far more of change in the growth and life of those organic cells which form so large a part of the fluid. A poison which may at one time act on sanguineous cells, and interfere with or modify elimination, so as to produce the phenomena of fever, may at another time have a modification which affects vesicular neurine, and occasion neuralgia and strange spasms. Those who are familiar with the history of epidemics must be well aware how interchangeable are fevers and nervous diseases. Wild maniacal dances have followed close upon black pestilences, neuralgia upon agues, &c.

Whether tonic medicines, which act chemically, are restorative or catalytic, it is probable they must enter into and take part in the cell-life, whether of the blood or the tissues.

Modern researches, especially those of M. Briquet, into the physiological operation of quinine, go to prove that its special influence is exerted on the nervous system, and that in large doses it depresses rather than excites the principal functions of that system. It is

therefore conceiveable that if a new form of life has been produced in that system by the operation of a malarious poison, or by any other cause, such an agent as quinine may alter and destroy it. At a certain hour in the day certain nerves begin to ache, and the pain continues for several hours, and then subsides. There must be either in the periphery or in the central termination of those nerves, some new development of nerve-life. Large doses of quinine are swallowed, and the pain appears with diminished force, and in time departs.

Without pursuing any further speculation on the modus operandi of these medicines, which are at once tonic, anti-periodic, and anti-neuralgic, I now proceed to observe that quinine appears to me to be of all remedies that which is most extensively and constantly serviceable in headaches, whether strictly nervous or neuralgic. It at one time helps to remove that irritable condition of the nerves, which makes them take offence at anything unusual in the degree or kind of cerebral action, or at what is occurring in distant organs, and at another time it proves subversive of that very condition of nerves in which the paroxysm of pain consists. It would be less frequently productive of disappointment were it given more liberally and more unflinchingly. Small doses will not avail. And we must be prepared to set aside, or to pacify the fears of our patients, who from the peculiar sensations in the auditory nerves are beset with phantoms of plethora and apoplexy.

If the case has been of recent origin, three grains of quinine thrice daily will usually be a sufficient dose. But if it has been of long standing we must double this quantity, and in some instances ten grain doses must be administered thrice in the day.

Many substances may be advantageously combined with the quinine in order to render it more agreeable to the stomach, especially sedatives, such as extract of hemlock and of hops. I generally administer it in the form of pills, as being more convenient, and less disturbing to the stomach. When the liquid form is used we may add hydrocyanic acid if needful.

Other combined substances may be auxiliary to the specific influence of the quinine, as in the well-known formula of quinine, compound galbanum pill, and hemlock.

Every one is familiar with that peculiar affection of the hearing which is complained of by those who take quinine in large doses. It is often, as I have hinted, so troublesome as to deter the patient from persevering with the remedy, especially when, as is common with those who suffer headache, there is an impression on the mind that the vessels of the head are disposed to fulness. It may be a reason for moderating, but not for withdrawing, the remedy.

We have seen when considering the probable seat of the pain in headache, that the ganglionic nerves which accompany the blood-vessels, and are distributed over the membranes and the substance of the encephalon, are the nerves affected. Now if one thing be more

distinctly proved by observation than any other, as to the action of quinine, it is that this substance lowers the frequency of the heart's pulsations. This must be effected through the nerves which determine the rate and rythm of those pulsations, and which are ganglionic. There is here therefore an analogical reason for expecting that quinine may exert a special influence on those nerves which accompany the cerebral vessels.

Next in importance to quinine as a remedy for headache, comes Arsenic. It is not surprising in endeavouring to account for its medicinal action, whether as a remedy for ague or for neuralgia, we should think of its poisonous power, and therefore presume it to be catalytic, or destructive to some materies morbi. Whether its action is so purely catalytic, or whether it consists in disturbing and overcoming abnormal forms of growth in the tissues, is difficult to determine. But while we know that in the normal state of the body it produces only too appreciable effects on the mucous membranes, the skin, and the nervous system, we need not look further for the wonderful control which it exercises over diseases of the skin, and over obstinate neuralgic affections. The very extent of its power is an inconvenience in the employment of this substance.

The form of headache in which I have found it most efficacious, has been not so much that which springs from an excessive irritability of the cerebral nerves, as that which comes in distinct paroxysms and at regular intervals. These are cases in which, after the termination of a paroxysm, the nervous matter grows gradually again into that form which eventuates in a paroxysm. This growth is destroyed by the arsenic. If the hypothesis of a toxic agent be preferred, an agent requiring a certain time for its elaboration, and then for its destruction in the paroxysm which it has induced, we may say that the arsenic has in some way prevented the formation of the agent, perhaps by a quasi-chemical process.

In the administration of this medicine I have preferred small doses —three or four minims, largely diluted, taken thrice daily, and continued for periods of time varying from two to four months.

A long interval separates the degree of value possessed by these two remedies for headache, from that which belongs to any other agents. Still there are other remedies, not without importance, to which we may be driven by the idiosyncrasies of our patients. According to my own experience, the first in this class is Zinc. The oxide and the sulphate have to be given for a long time before they produce any decided effect, but the patience of the physician and of the sufferer will generally be rewarded, especially if a steady and well-graduated augmentation of the dose be enforced, as the stomach becomes more tolerant of it. To eke out the time, to gain temporary advantages satisfactory to the feelings, and confirmatory to the confidence of the patients, until the more permanent good has been effected, it is well to combine the zinc with some neurotic cordial. Camphor

avails in one, galbanum or castor in another, or musk, or sumbul, and the rest of these singular nervines. But none of these combinations can compete in convenience and efficacy with that invaluable salt, the valerianate of zinc. Many years before this substance was introduced, I had been in the habit of prescribing a well-known combination of oxide of zinc, extract of valerian, and extract of hyoscyamus, with a degree of benefit which had often far exceeded my expectations. And I remember the eager interest with which I first observed in one of the foreign journals the announcement of this new combination of zinc and valerianic acid. If I may venture on such a remark, I should say that, judging from the prescriptions which I have met with, this medicine is usually given in doses far too small. My own knowledge of the larger doses was, in the first instance accidental. For a lady, suffering a singular laryngeal spasm after influenza, I had prescribed a grain of valeriante of zinc in a powder (as she was unable to swallow a pill), to be taken every three hours. Six grains had been directed to be distributed into six powders, but the dispenser had sent six powders, each containing six grains. In the morning I found that the powders had been taken with marvellous benefit, and no distress to the stomach. I need not say that this accidental lesson was not lost upon me, and that I have since prescribed the medicine in bolder doses than previously.

Iron may perhaps be classed next to zinc in value. Some practitioners would place it higher. When neurotic susceptibility is conjoined with povérty of colouring matter in the blood, its value can scarcely be over-praised. But even without this conjunction there are cases in which ferruginous preparations have great efficacy; but we are oftener checked by the use of this metal when we administer it in other diseases, by complaints of the pain or distress which it excites in the head, than by any other symptoms attendant upon its use. Still every practitioner must have remarked its signal utility in cases of headache with great debility, especially when the constitution has been worn down by previous disease. The carbonate has been used more frequently than any other form for the cure of strictly neuralgic headache. It is difficult to find a reason for the preference which many have given to this preparation, unless it be, that as it is very partially soluble, and is therefore given in large doses, it enters the system in very minute quantities at a time. Perhaps, as it is applied to so extensive a surface in the gradual travel of its large quantity through the tube, more may eventually enter the blood than when a small dose of a more soluble salt has been taken.

Of copper I have very little experience as a remedy for cephalalgia. I have used it in the form of ammoniaret, as in epilepsy, but with no very decided results. Were I pressed for a new agent, or a new combination in some very refractory case, I should try small doses of the sulphate of copper, in combination with quinine, as in Sir Henry Halford's favourite combination for epilepsy.

Nickel was first brought before the notice of the profession by Dr. Simpson. He one day introduced me to a gentleman who had been a sufferer in an unusual degree, and for a long time from headache, and in whom sulphate of nickel had been of more avail than other remedies, but I did not learn what those other remedies had been. I have since then employed it in several cases, and I think always with some benefit; the dose has been a grain thrice daily.

It is highly probable that all the metals have more or less control over those new forms of neurotic life in which nervous diseases consist, and we may yet add some shafts to our quiver, tipped with selenium, cerium, and cadmium, to which Dr. Simpson has directed the attention of the profession.

When speaking of quinine, I ought to have remarked that beeberine in large doses, has seemed to me to act in a manner very similar to that of quinine.—*Med. Times and Gazette, May* 8, 1858, *p.* 473.

180.—ON THE PHYSIOLOGICAL AND THERAPEUTICAL EFFECTS OF ARSENIC.

By Dr. JAMES BEGBIE, Vice-President of the Royal College of Physicians of Edin., Physician in Ordinary to the Queen in Scotland.

[Arsenic is a powerful alterative. The lameness and deformities of chronic rheumatism, the nodosities of joints, gradually relax and disappear under a well-conducted course of arsenic, aided probably by the addition of iodine, quinine, or cod-liver oil.]

Speaking of the use of arsenic in chronic rheumatism, Dr. Christison says, "I have known several cases of this nodosity of the joints, as some authors term it, get well under the continuous administration of arsenic for some weeks; and it appeared to me that the commencement of the cure concurred with the first development of the physiological effects." "Arsenic, (says Dr. Fuller, one of the latest writers on rheumatism,) judiciously administered, and carefully watched in its effects, is one of the most valuable remedies in the chronic forms of rheumatism."

Many years ago, an industrious workman approaching the decline of life, applied to me for the relief or cure of the crippling and painful swellings of the small joints of his hands, and particularly of his feet, under which he had long laboured, and by which he had been rendered utterly unfit to pursue his usual avocations. The pains became aggravated at night, and under vicissitudes of temperature, and the patient was sensitively alive to changes of weather. It was with great difficulty and considerable suffering that he had been able to hobble to my door. When I speak of his case as one of chronic rheumatism, I sufficiently describe it. Under remedies external and internal, orthodox and empirical, he had derived no benefit; and seemed almost hopeless of relief. He was ordered to take five drops

of the liquor arsenicalis after each meal, and to add one drop every third day till the eyelids became affected. He faithfully followed the prescription for many weeks, and underwent the trifling disorder which characterizes the operation of the drug. He continued his attendance for several months. The knobbiness, and stiffness, and pain of his joints gradually subsided and disappeared; he walked repeatedly to my house, a distance of a mile and a half, with ease and comfort; he improved in general health; at last he ceased his attendance, he returned to his workshop, and I saw no more of him.

A married lady, in the prime of life, the mother of several children, the descendant of gouty ancestors, and a sufferer in early years from painful and disordered menstruation, consulted me last autumn, for symptoms corresponding in some measure with those exhibited by this workman. She was very lame from the stiffness, swelling, and deformities of her toes and ankle-joints, and quite incapable of holding a needle, or directing a pen, from the painful nodosities of her fingers and hands, the distorted appearance of which presented a remarkable uniformity on both sides of the body,—symmetrical, in obedience to the law of blood diseases, as noticed by Dr. Budd. She had feverish, restless nights; a worn-out, emaciated look; a tendency to hectic paroxysms; a depraved appetite; a loaded tongue; along with copious lithates in the urine, and considerable derangement of the biliary secretions. These symptoms had supervened on a miscarriage she had suffered in the spring, followed by a protracted and anxious attendance on a near relative during a dangerous illness. The severity of the attack had, in a great measure, subsided before she came under my care. She had been judiciously treated in the North of England, where she usually resided: colchicum, iodine, and various other remedies had been employed; but her disorder went on. After it had been corrected to some extent by depurants and laxatives, without any relief to the local disease, she was ordered to take the liquor arsenicalis in the usual dose, and with the usual instructions. She continued two months under my care; the medicine was taken regularly during that time; no well marked physiological effects ensued; but a gradual improvement in the condition of the feet and hands took place; she was able to walk with comparative comfort, and to handle her knife and fork with ease. Her general health had improved, the secretions of the kidney and liver had assumed a normal character; she added to her usual remedy the free use of lemon juice, and an occasional warm bath. She left Edinburgh, with instructions to continue the arsenic, and begin the use of cod-liver oil. I learned, in the course of a month, that she had made progress towards ultimate cure; that the pains, and swellings, and stiffness were gradually subsiding; that a fulness of the eyelids had been observed, along with a dryness of the mouth and tongue; that she had intermitted the use of the arsenic for ten days, in consequence of these symptoms concurring with uneasiness and slight pain in the stomach; but that she had failed to witness

any of the other phenomena for which she had been directed to watch. I subsequently learned, that with the exception of the short interval referred to, she had persistently taken the arsenic for three months, without any other unpleasant consequences than those alluded to, and had, on the contrary, during the time it was suspended, experienced some increase of the pain, and stiffness of the small joints, which had, however, given way on her resuming the medicine. She was directed to continue the use of the mineral in diminished doses, and to adhere to that of the cod-liver oil. The last accounts bear that she is greatly improved in health, and able to walk with ease to a considerable distance.

The case of the lady differs in some respects from that of the workman. His presented the true characters of chronic rheumatism; hers manifested those of rheumatic gout, as it is called, a painful and obstinate affection to which females suffering from uterine disorder are peculiarly liable. It will be remarked, that in the former case the mineral acted quickly and successfully; in the latter its effects, both physiological and curative, were slowly and imperfectly developed. The cases together, bear witness to the correct observation of Dr. Bardsley, and the earlier exhibitors of arsenic in chronic rheumatism—that while in the one form of disease the medicine will be found to cure without assistance, in the other form it will be necessary to call in the aid of other remedies. Still, in the language of Dr. Fuller, it will be found "a faithful ally."

Closely allied to rheumatism, we might expect that neuralgia in some of its forms would be found to yield to arsenic; accordingly we have the high authority of Romberg in its favour. Speaking of the remedies for neuralgia, he says, "The united testimony of various observers agrees in according to arsenic the chief place among metallic preparations; but it will not do to rest contented with such timid doses as might be worthy of a homœopathic quack. It must be exhibited in increasing doses, from three to ten drops of Fowler's solution, two or three times daily; it should be persevered in until the toxic effects show themselves, in sickness, a sense of fainting, formication in the toes and fingers, dryness of the fauces, and white tongue; then a pause should be allowed, and the solution be resumed as soon as those symptoms have subsided."

Among the various remedies employed for the cure of chorea, arsenic holds the foremost place. On a former occasion, I detailed the history of several cases in which its administration was speedily attended by complete relief to all the symptoms. I now beg to subjoin the following:—

On the 6th of May, 1856, I was requested by Dr. Finlay to visit, along with him, a boy of the age of sixteen, who had, for the ten previous days, been labouring under chorea, in a very aggravated form. The boy was the son of healthy parents, and one of a family of ten, among whom no particular form of disease had manifested itself. He

himself, at the age of fourteen, had suffered from a rheumatic attack, of three weeks' duration; but, during the period intervening, had enjoyed perfect health. When seen, on the tenth day of his illness, he was in bed, unable to rest in any posture—the muscles of the trunk and extremities being affected by constant and violent jactitations; those of the neck, head, and face participating in the general spasmodic movements. The limbs were sometimes so violently convulsed, and the writhings and agitations of the body so strong, as to render it necessary to impose the whole weight of a grown-up person in order to retain him in bed. He was unable to articulate, except in monosyllables, emitted with a forcible sound, and in an unnatural manner. He was unable to swallow, except to a limited extent, generally losing by the choreic movements, a large portion of his food and drink. In the attempts to take food, the jaws frequently closed on the spoon or vessel offered to him, and the glass or earthenware were fractured at times between his teeth. The general choreic movements were incessant, except during sleep, when perfect stillness of the muscles prevailed; but this was of short duration, according to his mother's account, never longer than half an hour at a time, when the agitations were resumed with their wonted force, along with the peculiar gesticulations and grimaces which characterise the disease. On one occasion, it was remarked that there was a temporary lull to these involuntary muscular movements, from a cause acting powerfully on the mind: the patient, in attempting to drink from a wine-glass offered to him, convulsively seized the vessel between his teeth, broke it, wounding his tongue, from which blood flowed freely, the sight of which alarmed him, calming his agitated frame, and placing his muscles for a time under the government of the will. The mind was throughout the illness undisturbed, and the natural functions were duly performed. No remission of the symptoms had attended the remedies hitherto prescribed. He was ordered the arsenical solution, in the usual dose of five drops, thrice a-day, which he continued under the observation of Dr. Finlay. On seeing him again together on the 17th—ten days after our last visit—there was a marked remission in all the choreic contortions. The eyeball was suffused, and the tongue, which was still suddenly thrust out, and as suddenly drawn back, was swollen and whitened. He was ordered to continue the drops. On the 28th he was nearly well; all the symptoms having gradually abated in the interval. He was able to maintain himself in a state of rest, to articulate plainly without grimaces, and to swallow without snapping. The arsenic had been followed by a full development of its physiological effects, to which was added a copious crop of boils. He was permitted to discontinue the medicine, at the end of three weeks from the time of its commencement, when every symptom of his malady had disappeared. Dr. Finlay informs me, that a slight attack of the same character, occurring about a twelvemonth afterwards, was speedily arrested by a return to the same mode of treatment. The

case illustrates the remark made in a former paper in regard to the value of arsenic as a remedy in chorea, and, along with others, still enables me to say that in this disease I have never seen it fail.

A girl of eleven years, whose case is recorded by Romberg, had been affected for eight years with intense chorea, especially of the right half of the body. All remedies applied for a series of years had proved ineffectual. On the 22nd Nov., 1842, Fowler's solution was ordered for the first time, but was omitted again for a time, when, after a week, slight toxic symptoms were manifested. It was then again given in increasing doses; a marked improvement was manifested at the end of Jan. 1843, and in March the patient had entirely recovered from the chorea of eight years' duration: she continued free from it, as she assured Romberg, on applying for relief, in 1849, for a paralytic affection of the face caused by rheumatism. In another patient, a girl of ten years, the chorea had continued for two years. Purgatives, preparations of iron, and cold effusion had been employed in vain by other medical men. Fowler's solution was ordered on the 29th Jan., 1844; on the 19th Feb. the symptoms presented a marked abatement, and on the 5th of May the patient was discharged cured. I am tempted to give just one other of Romberg's cures. In the spring of 1850 he was called to a case of chorea of extreme intensity, which had lasted six months. The patient, a girl of eight years, after a previous attack of articular rheumatism, had for half a year been afflicted with chorea, to such an extent that she could neither walk nor stand, nor speak articulately; when awake, her violent movements rendered it necessary for several persons to hold her; and she was much emaciated. All the remedies tried had failed. The use of Fowler's solution, continued for eight weeks, and taken in doses of four drops three times a day, established the cure.

[The influence of arsenic over the chronic and non-contagious forms of various kinds of skin diseases is well known.]

Some years ago, a young lady, apparently in perfect health, judging from the freshness and bloom of her countenance, consulted me regarding a cutaneous eruption, having the well marked characters of psoriasis, with intervening patches having more those of lepra vulgaris. It had lasted many months, resisting many applications; and was distributed in numerous patches over the trunk of the body as well as over the extremities. It was the source more of irritation and annoyance than of pain. She had suffered from dysmenorrhœa, and general uterine disorder, but was otherwise in good health. Her family had manifested a predisposition to rheumatic ailments. After a few doses of saline aperients and depurants, the liquor arsenicalis was administered in doses of five drops three times a day, immediately after food, and the skin ordered to be bathed once or twice a day with vinegar diluted largely with warm water. On her next visit, at the end of a week, the arsenical action was faintly developed, but the scaly patches

had undergone no change. She was ordered to persevere in the use of the drops. At the end of the second week, the eyelids and tongue presented the distinctive characters of the operation of arsenic. The eruption was checked in its progress, and in one or two patches the separation of the scales had disclosed a healthy surface. She was enjoined to continue the use of the drops. In the course of another week, the disease was shorn of its strength, and the medicine was intermitted, with instructions to resume its use in the event of any reappearance of the eruption. Before many months were over it had regained its place, but again yielded and disappeared under the influence of the arsenic. This alternation was repeated again and again, till tired and disappointed, the patient transferred her confidence to another physician; and on meeting her many months afterwards, I learned that her malady had entirely disappeared under the influence of tar. Subsequent observation has led me to see the error committed in this instance by withdrawing the remedy too early, in place of persisting in its use for some time after every vestige of the disease had disappeared. How far the tar, to which the cure was attributed, was assisted by the previous exhibition of arsenic, I can only conjecture. We know, however, that from the days of Cullen, tar has been deservedly a favourite remedy in the chronic cutaneous eruptions. I saw lately a young lady, under the care of Dr. Simpson, who had long suffered from lepra, and had been for nearly a year under treatment by arsenic. She was then recovering, under the use of tar, which Dr. Simpson had prescribed in consequence of understanding that arsenic had failed to effect a cure. To what extent, or in what manner, the mineral had been employed, I was unable to learn. The patient, in obtaining the cure of her leprous disorder, secured also relief from uterine derangement, under which she had long laboured.

A young lady, in her twentieth year, applied to me for relief of a skin affection, which assumed the form of psoriasis, in patches scattered over the limbs. The complaint had existed during several months, accompanied by considerable irritation; but from unwillingness to disclose a disorder looked upon as loathsome, she had not been subjected to any treatment which gave promise of removing it. The invasion of the temples and forehead at length compelled her to seek advice. She was in excellent health, apparently, and no constitutional derangement was acknowledged. Her family were rheumatic. I had recently attended her brother, while labouring under a severe attack of pleurisy. A saline aperient was prescribed daily, together with the liquor arsenicalis, in five drop doses, after meals. In three or four days, the eyelids and face became suffused and swollen, the skin dry and febrile, and the tongue covered with a fine silvery film. Considerable alarm was created by these manifestations, and much unwillingness expressed in regard to the continuance of the treatment. The drops were discontinued for a time, and resumed in smaller doses; the eruption having undergone only a partial improvement.

The effects of the arsenic were kept up in a modified form; the disease was arrested, and ultimately disappeared in the course of a few weeks.

In this case the arsenical action was speedily demonstrated, and in a degree somewhat more severe than usual. The practice of diminishing the dose, and persevering in a reduced form, was attended by the best results.

It is worthy of remark that, in treating skin diseases with arsenic, on the development of the first signs of physiological operation, there is not unfrequently an aggravation of the eruption for a short time. This circumstance should not deter, but, on the contrary, encourage us, persistently to maintain its use.

Differing widely, apparently, in their nature, yet frequently and intimately associated together, are the chronic affections of the skin, with some of the most obstinate and intractable disorders of the uterus, and over them conjunctly or separately, arsenic exercises a powerful control. In the twenty-first volume of the 'Medico-Chirurgical Transactions,' we are told that Dr. Locock cured a lady of menorrhagia by arsenic, having recommended it to her for a disorder of the nose, being ignorant at the time that she was subject to the former disorder, she having neglected to mention it, considering it quite irremediable, as it had baffled the skill of every physician she had hitherto consulted. In the same volume, we learn that Eliza Fox consulted Mr. Hunt, in 1836, for a leprous eruption on the knees and elbows, for which he prescribed three drops of the liquor arsenicalis three times a-day. At the end of three months her mother called upon him to thank him for not only curing her daughter of the eruption, but for making her regular, then mentioning, for the first time, that previously to taking the medicine her daughter had menstruated much too frequently and profusely, which had gradually abated since she had commenced taking the drops, and that she was then quite well.

In this manner, it appears, arsenic was introduced as a remedy in uterine disorders. Dr. Hunt, it is true, had previously prescribed it in a case of cancer of the womb, and had been forcibly struck with the fact, that the pain in the diseased part was relieved as soon as the medicine affected the system; and recollecting that inflammation of the genitals occasionally follows the administration of arsenic as a poison, he was led to hope that it might be useful in some disorders of these parts. Accordingly, he prescribed it in a great variety of uterine affections, and published the results of his experience of its use in menorrhagia, dysmenorrhœa, leucorrhœa, and other disorders, in which he has recorded many interesting cases of successful treatment. Sir Charles Locock confirms the value of the remedy; and states, that he has employed it with great success, in certain forms of menorrhagia, and in many other uterine affections.

Dr. Simpson informs me that he has used it extensively and suc-

cessfully in amenorrhœa and other disorders of the uterus, where iron appeared to be contra-indicated; as well as in that peculiar affection of the bowels which he has described as prevalent among females, and characterized by copious discharge of membranous shreds, and accompanied by great emaciation, and a long train of neuralgic and other nervous symptoms. This pellicular affection of the mucous membrane of the bowels occasionally co-exists with dysmenorrhœa or other uterine disorder, the membranous shreds being discharged from the bowels and the uterus at the same time, and is found to yield to the same treatment as that adopted in chronic cutaneous eruptions. "Most reliance," Dr. Simpson tells us, "ought to be placed on small and very long-continued doses of arsenic, as two drops of Fowler's solution, or a pill containing the sixtieth of a grain of the arsenite of potass taken three or four times a-day."

Arsenic has long been successfully employed in ague, and still holds its place, competing with quinine for rank and preference. "I have been able (says M. Boudin, the late physician-general of the French troops in Algeria), in a great number of cases, and by very small doses of arsenious acid, to put an end, in a short time, to quotidian, tertian, and quartan fevers, contracted in latitudes the most various; often complicated with chronic enlargements of the abdominal viscera, which were incurable by sulphate of quinine.

Arsenic has been employed successfully in many affections of the bronchial tubes, in bronchitis, in some forms of asthma, and in hay-fever. It has been found useful in cancer and in indolent ulcers; in the former, subduing pain and arresting the progress of the disease; in the latter, securing a healthy granulating surface, and effecting a complete cure when other means have failed. It has been found useful in some forms of ophthalmia. Lastly, it has been employed successfully in some forms of paralysis, and in other affections of the nervous system.—*Edinburgh Medical Journal, May*, 1858, *p.* 967.

181.—*Use of Chloroform in Sounding for Stone.*—It is always a mortifying occurrence to a surgeon to miss the finding of a stone in the bladder, and leave the discovery to be made by some one else We not unfrequently have cases brought under our notice in which a patient submitted to lithotomy at one hospital, gives the statement that he has been previously sounded at some other institution, and told that he had no stone. These mistakes are especially liable to occur in young subjects, and when the stone is small and light. We believe, however, that the neglect to give chloroform, and to inject the bladder before the use of the sound, is fairly chargeable with many of them, and that the profession would gain in character, and individuals often be saved much annoyance if these precautions were never omitted. To sound a squalling, struggling child, who in all probability has emptied his bladder at the sight of the instrument, is no easy

affair, and not by any means likely to afford trustworthy conclusions. On the other hand, children bear chloroform remarkably well, and we are at a loss to conceive that any inconvenience would result from its habitual employment under such circumstances.—*Med. Times and Gazette, May* 8, 1858, *p.* 480.

182.—MARRIAGES OF CONSANGUINITY AND THEIR RESULTS.

The fact that intermarriage among blood relations is attended with the risk of unhealthy progeny, is one which the common observation and common sense of mankind have almost universally recorded. In this country, and possibly in all countries, the rudest of the people recognise this occurrence, and point it out as one which should not exist. Yet such is the perversity of minds—such the urgency of that principle which recognises present or temporary benefits in opposition to disadvantages in prospect which may never happen in the course of the accidental future—that the common knowledge and assent to which we have made reference are allowed to stand but for little in the way of the mischief foreshadowed. Self-interest, in one or other of its forms, predominates and perpetuates an evil which tells not on the perpetrators, but on a race proceeding from them, having as yet no existing identity in time or matter.

Of all classes of the community, none know so well the nature of the evil now being discussed, as the medical fraternity. To the medical man the evils of intermarriage are the repeated confirmations of his daily experience. Seeking for evidence on which to make a sound diagnosis, he gathers all the information he can in reference to relationships and family ailments, and uses such information to an advantage which none but himself can comprehend. Yet, here, perversity again manifests itself in opposition to even scientific knowledge.

"Physician, heal thyself," is a proverb which has been oftener said than done. We want now, however, to see it done as well as said, and we therefore call professional attention to the subject of intermarriage, with the hope that a more perfect understanding of the importance of the question may be arrived at, and that our lecturers may see the propriety of teaching a great hygienic lesson by example as well as precept.

But little sound statistical information has as yet been collected to guide us towards correct conclusions on the matter in hand. This is from no deficiency of fact, but from deficiency of industry and definite observation. We are now, it is true, emerging from this state of inaction, and a few years will doubtless bring forth numerous labourers in the wide field of research which now lies open.

It is due to our American brethren to intimate, that in the re-opening of this engrossing topic they have taken the initiative. Our attention has been specially directed to a very able production in a late

number of the 'North American Medico-Chirurgical Review,' by Dr. Bemiss, of Louisville, some points of which are of singular value. Dr. Bemiss for the first time gives us statistical data as the basis of his argument.

The number of marriages of consanguinity, the histories of which were collected by Dr. Bemiss, are 34. Of this number 28 were of the third degree of the civil law, or between first cousins, and 6 were of the fourth degree, or second cousins. Of the total number of marriages, 27 were fruitful, and 7 sterile. The 27 fruitful marriages produced 191 children. In only 13 of these unions was the sex of the offspring reported, giving forty-nine males to forty-two females—a proper proportion, by the way, as regards the division of sex. Of the 28 marriages of the third degree of relationship, first cousins, 23 were fruitful, and 5 sterile. Of the 6 marriages in the fourth degree, 4 were fruitful, and 2 sterile. In both these latter instances of sterility the female was the product of a marriage of consanguinity. The relative proportion of children to the total number of marriages was 1 to 5·6. The average fecunity to each fruitful union was 7, and a slight excess. The average births to each fecund marriage in the third degree of kinship was 6·87 nearly. The average number of births in the fruitful unions of the fourth degree was 8½.

Having so far marshalled his facts, Dr. Bemiss narrates the condition of the children thus propagated.

Of the 191 children born, 58 perished in early life. In 24 of the 58 deaths, the causes are stated as follows:—Of consumption 15; of spasmodic affections, 8; of hydrocephalus, 1. Of the 134 who arrived at maturity, 46 are reported as healthy; 32 are set down as deteriorated, but without absolute indications of disease; and 9 are returned without any statement as to health or condition. The remaining 47 all possess such abnormities as render them the subjects of particular observation. These are classed as follows:—23 are scrofulous, 4 are epileptics, 2 are insane, 2 are mutes, 4 are idiots, 2 are blind, 2 are deformed, 5 are albinoes, 6 have defective vision, and 1 has chorea.

While in point of fecundity these marriages present nothing very unusual, they exhibit comparatively, as Dr. Bemiss thinks, results more than usually unfavourable to the offspring. In support of this opinion, he quotes a report on idiotcy by Dr. Howe, in which that observer has narrated the history of 17 marriages of blood-relations. These 17 marriages gave birth to 95 children, of whom 44 were idiots, 12 scrofulous and puny, 1 deaf, 1 dwarf—58 in all of low health and imperfect, and only 37 of even tolerable health.

To define still more clearly the absolute influence of the blood-tie on the condition of the offspring, Dr. Bemiss has tabulated his results in the following manner. He divides the productive marriages in his his report into three classes:—1. Those where the husband and wife are relations of the fourth degree, or second cousins. 2. Those of the

third degree, or first cousins. 3. Those nearer than the third degree, viz., double cousins. The table, so constructed, stands thus:—

Degrees.	No. of Marriages.	No. of Children.	Died.	Diseased.	Deteriorated.	Healthy.	Unknown.
4th degree........................	4	34	8	6	10	10	
3 "	19	130	37	31	17	36	9
2½ "	4	27	13	5	6	3	

The results of this table are sufficiently striking, and as far as they extend are conclusive in favour of the supposition that the mischiefs arising from marriages of consanguinity increase under certain peculiar circumstances in proportion as the ties of relationship grow closer.

We have thus in brief sketched out such data as are at present before the profession on the question of intermarriage and its results. How this all-important matter may be more fully traced out involves considerations which our space does not permit us to discuss.—*Med. Times and Gazette, May* 8, 1858, *p*. 481.

183.—ON THE THERAPEUTICAL ACTION OF THE CONSTANT GALVANIC CURRENT.

By Dr. Robert Remak, of Berlin.

After the discovery of the voltaic pile (1800), many experiments were made with a view to the application of the galvanic current, as a means of treatment in diseases of the nerves and muscles. Stimulated by the admonitions of Alexander Humboldt, Loder of Jena, and Grasiengiesser of Berlin, were amongst the first to treat various paralytic affections of the limbs and sensorial nerves in this manner (1801). The opinion at that time being, that not the continued action of the current, but the shocks produced by the interruption of the current, are the best means of exciting the normal action of the nerves and muscles. These trials could not result in success, because, as my researches have now proved, such shocks can in very few cases be advantageously employed. Thus for many years the electrical machine formed the only means of producing and applying electricity to the above-named diseased conditions; and the opinion was generally adopted by physicians, that it signified little from what source electricity for medical purposes was produced.

Although the discoveries of Becquerel and Wollaston (1820-30) supplied the means of producing a constant and equable galvanic or electric current, physicians did not avail themselves of these improvements, but preferred using the magneto-electrical and electro-magnetic machines which were constructed after the discovery of the current of induction, made about the same time as Becquerel and Wollaston's, by Oersted and Faraday. In experimenting with these instruments, the fact was overlooked that the current of induction cannot be applied to the living body without producing shocks (*i. e.* spasmodic contractions of the muscles), and that these shocks have a weakening effect. At last the chief consideration came to be, the easiest method of procuring electricity for medical purposes. So at last the magneto-electric machine (of Saxton, Stoehrer, &c.) gave place to the self-acting electro-magnetic (galvano-magnetic) machine of Faraday, which was recommended by Duchenne, of Paris, and was much approved of in France and Germany. In the work of that physician it was stated that muscles are made to contract most readily by the current of induction, if certain points on their surface are touched by the electrodes. Having been occupied for many years with physiological researches upon muscular contraction, I was not a little curious to know the nature of these mystical points; and, on directing my attention to this subject, I soon found that they corresponded with the points of entrance of the muscular nerves, and that the degree of contraction of a muscle was proportionate exactly to the number of motory nerve-fibres embraced by the current at its point of application.

I stated the result of these physiological investigations in a small pamphlet, published in 1855, and drew attention to their value in a practical point of view. It seemed to me quite obvious that, for the successful therapeutical application of electricity, a better and more extensive physiological basis was required than was afforded by this one fact; so, in continuing my researches on the subject, I was led to examine the effect of the constant galvanic current (as it is produced by the elements of Daniell, Grove, or Bunsen) on the muscles and nerves of a healthy man. The results of these further observations I noticed in an appendix to the second edition of the pamphlet last quoted, also in a note sent to the Academy of Paris. After having continued such researches, made upon my own person, and upon many healthy men, for about six months, I was induced, in July, 1856, to apply the constant current as a means of treatment of contractions of muscles, in cases of hemiplegia from cerebral apoplexy. The most important result of this application was the fact, that the continued current applied for a few minutes to a contracted muscle had the effect of immediately relaxing it to a certain extent, and rendering it amenable to the influence of volition.

After repeating these trials upon 200 cases of different kinds of nervous diseases, I reported as the result of my further experience that the continued application of the constant current to the nerves

and muscles in rheumatism, paralysis, atrophy, neuralgic and spasmodic diseases, had in my hands proved of much greater service in a curative point of view, than any other application of electricity had hitherto done. I gave my results in a memoir which I read before the Academy of Sciences at Paris, in *séance* Sept. 22, 1856; and on the 29th of the same month I made some experiments before M. Rayer, who was representative of a commission appointed by the Academy for the purpose; and on the following day repeated them before a number of physicians and naturalists.

From that date to the present, I have spent all my time in continuing these researches, and in endeavouring to develope the methods of application of the constant current. In the Society of Medical Science of Berlin, I stated (Jan. 19, 1857) that the diseases in which the constant galvanic current is of service, are—1. Rheumatisms, acute and chronic. 2. Cerebral hemiplegias. 3. Paraplegias. 4. Atrophy of muscles. 5. Chorea. 6. Stammering. 7. Trembling of limbs. 8. Cramps of writers. And I have supported my assertions by presenting cases of these descriptions, which were either cured or improved by this mode of treatment. My subsequent publications upon the subject were directed principally to the treatment of atrophy and paralytic diseases. This was accounted for by the fact that certain physiological views, dating from the time of Volta Mariamni and Nobili, gave rise to the opinion that the continued action of the current had only a relaxing or weakening effect, and could do good only in spasmodic diseases. I have refuted this idea by showing that the continued current applied in a certain manner, is of use in many cases of paralysis in which the interrupted current of induction is even productive of harm.

One of the most curious results of my researches made during the last year is the observation, that the constant galvanic current, by dilating the blood-vessels, and by promoting absorption of exudations, can be used with good effect in certain inflammations in which the other antiphlogistic and resorbent remedies are insufficient. There is no doubt that the electrolytical power of the constant current (discovered by Nicholson and Carlisle, 1800) is a powerful means of producing these effects. I have already seen most convincing and gratifying proofs of this fact, not only in rheumatic and traumatic inflammations of joints, but also in the inflammatory states of the spinal marrow which sometimes precede atrophy of this organ(?). It may readily be supposed that the mode of applying the current must be very different in order to produce the various actions I have hitherto distinguished—viz. 1st. The catalytical (*i.e.* electrolytic and antiphlogistic); 2nd. The antiparalytic; 3rd. The antispasmodic. But for information on this subject, I am obliged for the present to refer to my various publications.

In Germany my experiments have not yet been repeated; but in France, after my visit in September, 1856, some physicians made

some trials upon the subject, and, as I am now informed, these were not unattended with success. In England I do not know if anything has been done in this way, but it is the object of this short paper to direct the attention of my English colleagues to this discovery (as I dare to name the methodic application of continued galvanic currents to diseased conditions), and I would feel satisfied if I thought that the methods described by me in a work I am about to publish, would in any way assist them to the successful practice of their art.

Finally, I think it my duty to state distinctly, that all my experiments upon 700 patients have been made only with the constant galvanic current (of Daniell, Grove, and Bunsen), and that there is reason to doubt if these results could have been obtained by the use of other elements less constant.—*Med. Times and Gazette, May* 8, 1858, *p.* 479.

184.—ON THE INDUCTION OF PREMATURE LABOUR BEFORE THE SEVENTH MONTH OF PREGNANCY.

By Dr. ROBERT LEE, Physician to the British Lying-in-Hospital, and Obstetric Physician to St. George's Hospital.

[The safety, efficacy, and morality of the practice of inducing premature labour is still questioned by many foreign and English practitioners; upon this point the following case bears:—]

On the 27th of October, 1849, Mr. Booth, of Great Queen-street, Westminster, requested me to see Mrs. S., who had been in labour forty-eight hours, and whose pelvis was greatly distorted with malacosteon. After perforating the head, I succeeded in extracting it with the crotchet, after great exertions, continued for more than two hours. The patient recovered in the most favourable manner. Her lameness, which commenced four years before, gradually increased after this confinement. At the beginning of December, 1852, I was informed by Mr. Booth that this patient was in the fifth month of pregnancy, and I made an attempt to induce premature labour, but the os uteri was so high up and so small that the attempt to pass the probe-pointed stiletted catheter into the uterus was speedily abandoned, and it was determined to allow the pregnancy, about the existence of which even there was some doubt, to go on without interruption for another month. On the 5th January, 1853, I again saw the patient, and made a careful examination of the pelvis. which was found distorted in the highest possible degree, even more than the pelvis now placed upon the table of the society. The tuberosities of the ischia were almost in contact, and the sacrum projecting forward so as to be not more than one inch distant from the bones of the pubis. The impression made upon my mind by this examination was, that I had never before encountered in practice so formidable a case of difficulty from distortion of the bones of the pelvis. It appeared highly probable if

premature labour could not be induced, that the patient would either die undelivered or be subjected to the Cæsarean operation. I found some difficulty in passing the fore and middle finger of the left hand into the vagina, but after a time succeeded, and by pressing the anterior wall forward with the middle finger I succeeded at last in touching the anterior lip with my forefinger, and guided by this passed the point of the instrument through the os and cervix uteri into the cavity, and punctured the membranes. The liquor amnii immediately began to escape, and continued flowing till the morning of Friday, the 7th January, at four o'clock, when labour pains commenced. At two the os uteri was so much dilated, that the points of two fingers could be introduced, and the fact distinctly ascertained that the presentation was preternatural. At seven, p.m., the right arm was hanging out of the external parts, and the shoulder and thorax were forced down partially through the brim of the pelvis, and we were greatly pleased to find that the short diameter of the outlet was much increased by the tuberosities of the ischia having been pressed asunder. The operation of turning being considered wholly unadvisable and impracticable in this case, after carefully ascertaining the position of the fœtus, I resolved to eviscerate the fœtus, and afterwards with the crotchet fixed on the spine, as near as possible to the pelvis, to extract the nates and lower extremities. This was successfully done in a quarter of an hour, and in less than five minutes more the head was delivered without the employment of much force, and without the use of the perforator and crotchet. The patient recovered most favourably. and is still alive. The settled conviction left upon my mind by this case is, that a higher degree of distortion of the pelvis will never again be met with, and that if such a case should occur it would be possible to induce premature labour, and that it would be the duty of the practitioner to do so even before the sixth month of gestation.

Dr. Merriman was of opinion that the induction of premature labour by art "ought to be strictly confined to those melancholy cases of distorted pelvis, for which it was originally recommended," and the operation "should never," he says "be undertaken, till seven complete months of utero-gestation have elapsed;" "that the practice should never be adopted till experience has decidedly proved that the mother is incapable of bearing a full-grown fœtus alive;" and that "the operation ought not to be performed where the patient is labouring under any dangerous disease." These rules, laid down by Dr. Merriman forty years ago, "in order to guard against any abuse of this method of practice," may now, I believe, with safety and advantage, be greatly modified and extended.

It has been proved, by the results of extensive observation, that the induction of premature labour, which I regard as the most important improvement ever introduced into the practice of midwifery, is not only efficacious in all forms and degrees of dis-

tortion of the pelvis, but in cases where ovarian, uterine, and bony tumours obstruct delivery; in cicatrices of the vagina; malignant diseases of the os and cervix uteri; in organic diseases of the heart and lungs; in dropsy of the amnion, and general dropsy; in renal and vesical diseases; in cases where the death of the fœtus in utero repeatedly occurs from morbid alterations in the structure of the placenta, and other causes; in mania during pregnancy; and especially in cases where obstinate and incurable vomiting occurs in the early months of gestation.—*Medical Times and Gazette, May* 8, 1858, *p.* 476.

185.—ON THE USE OF THE SPECULUM IN UTERINE DISEASES.

By Dr. Robert Lee, Obstetric Physician to St. George's Hospital.

[In the last volume of the 'Medico-Chirurgical Transactions' Dr. Lee published the details of eighty cases in which the speculum and caustic had been employed by other practitioners, which with 220 cases previously published, make up 300. Upon the use of this instrument he remarks,—]

Of these 300 patients, 47 were unmarried, one had barely completed her eighteenth year; there were several under twenty, and the greater number under thirty years of age, and were suffering from hysteria, leucorrhœa, dysmenorrhœa, or some nervous affection of the uterus, without inflammation, ulceration, or any structural disease or displacement of the organ. In one case the patient had been informed that the womb was prolapsed and much ulcerated, and some instrument had been introduced daily for six weeks, by a physician extensively engaged in the treatment of uterine disease, and great expense incurred, with an aggravation of all the symptoms. In this case I found the hymen so perfect that it was impossible to reach the os uteri without employing an unjustifiable degree of violence. On the ground of morality, and on every other ground, the employment of the speculum in these 47 cases could admit of no defence.

Of these 300 patients 70 were barren, and the sterility was not removed. nor the hysteria, leucorrhœa, or disordered menstruation, under which the greater number were labouring, in a single instance relieved, or any benefit obtained. The injurious effects of a long course of speculum and caustic treatment upon the moral feelings and character of several of these individuals were not attempted to be concealed, the treatment being spoken of with horror and shame.

Of these 300 patients there were a considerable number suffering from cancerous disease of the uterus, in all of which the symptoms were increased by the introduction of the speculum, and the application of caustic or the actual cautery to the ulcerated vagina, and os and cervix uteri. In one case, though the carcinomatous ulceration

was in an advanced stage, and the nature of the disease obvious to the most inexperienced, after an examination with the speculum a false prognosis was given, and iron heated to a white heat in fires of coke, was for months passed through the tube, and delusive hopes of recovery held out to the last, and the pecuniary concerns of the husband involved in irretrievable ruin by the charges, medical and surgical, incurred by such unscientific, unprofessional, and unprincipled proceedings.

Neither in the living nor in the dead body have I ever seen a case of simple ulceration from chronic inflammation of the os or cervix uteri, and to apply the term ulceration to states of the os uteri in which the mucous membrane, or, as it is termed by some, the basement membrane, is not destroyed by ulceration, is an abuse of language calculated only to deceive and mislead the members of the medical profession, from whom the truth has been carefully concealed. The speculum emanated from the syphilitic wards of the hospitals of Paris, and it would have been better for the women of England had its use been confined to those institutions.—*Medico-Chirurgical Transactions, Vol. XL., p.* 201.

186.—ON CONSUMPTION.

By Dr. Richard Payne Cotton, Physician to the Hospital for Consumption and Diseases of the Chest.

[Amongst other causes influencing this disease, Dr. Cotton says—]

Hereditary transmission appears to have a smaller share in producing phthisis than is generally supposed. In a thousand cases, three hundred and sixty-seven, or rather more than one-third, were members of consumptive families; whilst, in the remaining six hundred and thirty-three, or in somewhat less than two-thirds, the disease could not be shown to have proceeded from hereditary causes.

It is certain, however, that this scarcely exhibits the full extent of hereditary taint, since it embraces only the preceding generation, (statements referring anterior to this being too vague to be depended upon); and it is well known that phthisis, like other diseases so propagated, may remain dormant, for one, two, or even more generations, and then show itself again at a remote period, when, perhaps, its original existence in a family has been long lost sight of. The above, therefore, must be considered only as an approximation to the truth, or as exhibiting the frequency with which hereditary influence can be demonstrated.

Consumption is more likely to be acquired by males than females.

As a general rule, *hereditary* consumption is less controllable than *acquired* consumption; and those cases which prove the most rapidly fatal will be usually found to proceed from, or to be accompanied by, hereditary taint.

Inactivity is one of the most fruitful causes of delicate health; and I have seen many cases of threatened phthisis entirely recover, from nothing else than the use of regular and moderate exercise.

When hectic fever has become fully established, the patient is seldom free from diarrhœa, perspirations, or profuse expectoration, which seem to exhibit towards each other a certain degree of antagonism. In proportion to the increase of one, the others have a tendency to diminish; and as one becomes checked by treatment, another too often makes its appearance. The issue of nearly every fatal case of phthisis is immediately attributable to the exhausting effect of one or other of these three symptoms; hence it becomes a matter of practical value to ascertain their comparative influence upon the patient.

Diarrrhœa is the most rapidly destructive; perspirations the next; and expectoration the least so.

[Under the subject of the preventive treatment of phthisis the author observes, that when a parent, even although competent to the office, is yet possessed of a marked hereditary predisposition, it is better for her offspring, as well as herself, that her duties should be transferred to another.]

The diet should be *moderate*, simple, and nutritious. and consist of *a full amount of animal food.* Regular exercise should be made imperative; and, where it is possible, the residence should be fixed in some healthy district, far removed from the depressing influences of a town; whilst the cultivation of the mind should neither be commenced too early, nor be pursued too rigorously. The consequence of a disregard to these matters is often painfully exhibited in weakly children, who have been injudiciously sent to the schools of our metropolis.

[The union of iron with iodine in the form of syrupus ferri iodidi, seems peculiarly adapted to tubercular affections.]—*Consumpton, its Nature, Symptoms, and Treatment,* 2*nd Edit.* *Churchill,* 1858.

187.—ON PULMONARY HEMORRHAGE.

By Dr. JAMES ALDERSON, Senior Physician to St. Mary's Hospital.

The popular view of hemorrhage from the lungs refers it to the rupture of a blood-vessel; it is also the common belief that such hemorrhage is the beginning of consumption. Now, it is not always the breaking of a blood-vessel, and whether it is or is not so, consumption does not always follow. It is not denied, as we shall see hereafter, that hemorrhage may take place from a ruptured or ulcerated vessel in the lungs, but this form of hæmoptysis is the exception to the general rule.

Hemorrhage from the lungs most frequently occurs by means of exudation through membranes or the coats of vessels. Exudation of blood may also result from a constitutional derangement, of which I shall presently describe an instance in one of the cases before us. There are also exceptional cases, the cause of which I shall presently refer to; but by far the greater number are to be referred to the existence of tuberculous deposit. It is not difficult to understand how the presence of tubercular matter will cause blood to be exuded from the vessels. As all the blood of the body has to pass through the lungs, for the purpose of purification before being again transmitted to the system, it is plain that the presence of any foreign body in the lungs must offer obstruction to the free transmission of the blood, and cause delay and congestion. The greater the quantity of blood present in the lungs, the greater must be the necessity of the presence of air to purify it; and the forced accumulation of both occasions the blood to exude from the surface of the membranes and vessels. Hence we account, not only for the symptom before us, but also for the dyspnœa, or difficulty of breathing. It must also be borne in mind that the structures and vessels are altogether impaired in tubercular constitutions, and therefore admit more easily of transudation.

In the later stages of pulmonary consumption, the hemorrhage results, not only from exudation, but from ulceration of smaller vessels in the immediate neighbourhood of softened tubercles. In the progress of the disease this hemorrhage is small in quantity, though frequently repeated; but in advanced cases of a particular class it is profuse and generally fatal, having resulted from the ulceration of a large vessel. This lesion is still essentially different from what is termed the breaking of a blood-vessel, as for instance, in the brain or its membranes, whether as in apoplexy, or as the result of an injury.

If we now briefly review the general character of spitting of blood, we shall find that it occurs under two forms—the one severe, the other slight. In the first, several ounces of blood will be brought up at once—six or seven or more ounces at a time. In the other, only specks or streaks may be seen in the expectoration; both forms being referable to exudation from obstruction; and although it is only the larger quantity which terrifies the patient, both forms equally reveal to the physician the existence of a diseased condition of the lungs.

When profuse, the blood is usually of a florid colour, frothy from the admixture of air, and clots of dark blood will be occasionally spit up, or sometimes apparently vomited, when a sort of convulsive action of the diaphragm accompanies the expectoration of the blood. A difficulty of breathing almost universally attends it, as well as pain, which is usually referred to the sternum, though sometimes to the side affected.—*Lancet, April* 24, 1858, *p.* 405.

188.—ON THE TOXICAL AND MEDICINAL PROPERTIES OF NITRATE OF OXYDE OF GLYCYL.

By A. G. Field, Esq., late Demonstrator of Anatomy at St. George's Hospital Medical School.

In the evening of the 3rd of Feb., 1858, I was conversing with a practitioner, when he mentioned a medicine which possessed peculiar and extraordinary qualities, some of which he described as having affected himself, though he had taken it in very minute quantities. I laughed at his credulity, and offered to take as much as he pleased, upon which he let two drops of what he called a diluted solution of glonoine fall on my tongue. After swallowing this small quantity of fluid—I was assured the quantity did not exceed two drops—I asked what effects I must expect, but was told to wait and observe for myself. I then purposely conversed on other subjects. In about three minutes I experienced a sensation of fulness in both sides of the neck, to this succeeded nausea, and I said, "I shall be sick." The next sensation of which I was conscious was, as if some of the same fluid was being poured down my throat, and then succeeded a few moments of uncertainty as to where I was, during which there was a loud rushing noise in my ears, like steam passing out of a tea-kettle, and a feeling of constriction around the lower part of my neck as if my coat were buttoned too tightly; my forehead was wet with perspiration, and I yawned frequently. My intellects returned, however, almost immediately. I reproached my friend for not having tested the anæsthetic power of the medicine, by inflicting a slight wound on me. I need scarcely say I am thus minute in my description of what occurred, that an accurate idea may be conveyed of the actual effect produced on me, as well as to justify the uses to which I have since put the medicine. When these sensations had passed off, which they did in a minute or so, they were succeeded by a slight headache, and dull heavy pain in the stomach, with a decided feeling of sickness, though without any apprehension that it would amount to vomiting. I lay on a sofa, feeling rather languid, but talking cheerfully, conscious at the same time that I could very well exert myself both mentally and physically, if I liked, but that it was more pleasant to be idle. This condition lasted about half an hour, at the end of which I was quite well, and walked home, a distance of half a mile, with perfect comfort. I slept soundly from one o'clock till six, when I was called up, having a slight amount of general headache, but not such as I should have regarded but for the recollection of last night's adventure.

The physician to whom I am indebted for this overdose told me, that when his first impression that I was shamming had passed off, my condition caused him the greatest alarm, for he really thought he had killed me. I learn from him that my head fell back, my jaw dropped, I was perfectly white, breathing stertorous, and no pulse at the wrist for the space of about two minutes. He immediately rushed

to a closet, and procured some stimulant, which he poured down my throat. I had never been in better health and spirits than on the day of this occurrence, and had taken nothing for hours but a little cold tea.

This same dilution of glonoine consists of one drop of a peculiar chemical compound, dissolved in ninety-nine drops of rectified spirit; and glonoine itself I learn to be a nitrate of oxyde of glycyl, prepared by adding nitric and sulphuric acids to glycerine, the temperature of the fluids being kept down by a freezing mixture.

My own personal experience of the very marked and peculiar effects produced by this drug made me anxious to test its qualities still further. As a direct sedative to the nervous system without possessing any stimulating or permanently depressing qualities, without affecting secretion, together with its power of subduing muscular action, it appeared to promise to become an invaluable agent in the treatment of a large class of nervous and spasmodic diseases.

Anxious to inform myself on the effects of a smaller dose, I got a medical friend to join me. We each touched our tongue with the cork moistened with glonoine solution, and recorded the sensations produced by it. They were nearly as possible identical—a sense of constriction of the neck, slight nausea, with fulness, and some pain in the head, as if the brain were expanding. But I think my friend must have experienced more decided effects than I did, for he declared he would never take any more. The sensations lasted about five minutes, and then passed off without leaving any unpleasant effects.

Animals, as far as my experiments have extended, appear to be almost unaffected by this drug, which acts so powerfully on the human organisation.

I have repeatedly given it to cats, rabbits, and other animals in doses varying from two to thirty drops without producing any immediate effect. One rabbit had diarrhœa an hour after, and the cats appeared cold and lazy all the next day. Some smaller animals, such as mice and pigeons died after having taken the glonoine some hours, but they appeared to have suffered from alcoholic poisoning rather than from any symptoms at all resembling those produced by the glonoine on the human subject.

Disappointed in my endeavours to gain any information from experiments on animals, I still thought I had seen and felt enough of the physiological action of the medicine to justify my cautiously employing it in the treatment of disease.

Case 1.—Mrs L., aged 68, had for some days been under treatment on account of a very painful nervous affection, which she designates spasms. This recurred regularly every three hours, and is described by herself and her attendants as most distressing, and my own observation of one or two seizures fully bears out their statements. Each attack commenced suddenly with intense pain in the epigastrium,

extending up to the top of the chest, and then down the inner side of the left arm; it lasted about half an hour, and then subsided, leaving her exhausted, but otherwise well in the intervals. They recurred during the night with equal regularity. She was at the same time the subject of uterine derangement. Fœtid ammonia, assafœtida, chloroform, valerian, hyoscyamus, camphor, and prussic acid, with a counter-irritation, having failed to give her relief, I had recourse to morphia every two hours, which relieved her only after several doses had been taken, and partial narcotism had been produced. She would then enjoy a few hours' peace; but the attacks always returned when the influence of the morphia had passed off.

Feb. 5th. She had slept well all night from the morphia which had been taken in the previous twenty-four hours, and was awoke in the morning of this day by one of her painful attacks; but it yielded in three minutes to a quarter of a drop of the solution of glonoine in a dessert spoonful of water. After this she had four more attacks before noon. For this she took the same medicine, and was quickly relieved; but having exhausted her supply when the fourth occurred, she suffered as much as on former occasions.

My daily notes of this case are nearly a repetition of what I have just stated, till the evening of the 10th, when she appears to have taken an over-dose, which produced effects very similar to those from which I suffered on the 3rd. This gave rise to so much alarm, that she refused to take any more. I therefore again had recourse to the morphia; but she suffered so severely the next day and night, that she begged to be supplied with the glonoine again, and no sooner had she taken it than relief was obtained. The dose has been continued every four hours, with the happiest results. Her attacks now are reduced to two or three in the twenty-four hours, and always readily yield to the quarter of a drop of solution of glonoine. The only other treatment she has required has been a few ten-drop doses of the tincture of cannabis indicus, to relieve uterine hemorrhage.

Case 2.—Mrs. W. had suffered severe pain from a decayed tooth for several hours. The pain was so great that she would gladly have had it extracted; but her dentist was anxious to preserve it. In the evening she begged me to give her something; for she said, "It cannot be made worse." I placed about half a drop of the solution of glonoine (1 per cent.) on her tongue. Soon after she experienced a pulsation in the neck, fulness in the head, throbbing in the temples, and slight nausea. The toothache subsided, and she became partially insensible, disliking very much to be roused. When fully sensible she had headache, but the toothache was gone. Mrs. W. remarked, "Certainly that medicine allays pain wonderfully." She slept unusually well that night, and experienced no ill effects in the morning.

Case 3.—Elizabeth M., a stout, healthy young woman, had severe toothache. I was applying a very small piece of lint dipped in glonoine solution (1 per cent) when it accidentally fell into her mouth

and was swallowed. In about five minutes, after feeling giddy and sick with headache, she became insensible. Her countenance, naturally florid, was unaltered, breathing tranquil, pulse full, and rather quickened. Knowing, as I did, that she had taken but a small quantity of the drug, I kept my finger on her pulse, and allowed myself time carefully to observe her condition before applying a restorative. I tested her sensibility to pain, and called loudly to her, but without producing any impression. Directly I detected a slight failure in the pulse, in about three minutes after insensibility commenced, she had some stimulant poured down her throat, when she quickly recovered. Some headache was complained of, but the toothache was cured. The next morning she was quite well.

Case 4.—Mrs. R., aged 45, pale, anæmic, with feeble circulation, has for the last month suffered from headache, daily increasing in severity. When I first saw her, Feb. 15, she had had leeches applied to the temples, and had taken drastic purgatives, since which the pain had been much worse, and she could not sleep. I gave her a quarter drop of glonoine solution in coloured water every four hours. On seeing her the next day, she expressed the greatest gratitude for the relief the medicine had afforded her, and she said her head was much better after taking the first dose, and she slept four hours. The glonoine was of course given only as a palliative in this case, while iron and generous diet were relied on as a means of effecting a cure.

I have not yet met with one well-defined case of neuralgic or spasmodic disease in which this medicine has failed to afford relief. No vague, over-sanguine expectations are entertained of its power to cure disease where spasm or pain are but symptoms, excepting only in those cases where these consequences themselves become the cause of death, their cause being of a transient nature, and liable to subside if the patient's life can be maintained for a certain time, such as temporary irritation of a nervous centre, or inflammation of such a part, which might terminate in resolution or be subdued by remedies, if existence were prolonged sufficiently for their action; and also in cases where we may suppose symptoms such as spasm may react on their exciting cause, preventing the necessary tranquillity for recovery, the offspring, as it were, maintaining its parent. With such a remedy may we not look forward hopefully to the treatment of tetanus, hydrophobia, and other similar diseases?—*Med. Times and Gazette, March* 20, 1857, *p.* 291.

189.—DRS. FULLER AND HARLEY'S EXPERIMENTS WITH GLONOINE.

[In consequence of Mr. Field's statements regarding the properties of glonoine, Drs Fuller and Harley were induced to undertake the following experiments. Dr. Fuller says—]

The glonoine which I swallowed was pure glonoine, obtained from Morson's, of Southampton-row, diluted with 10 parts of rectified spirit; whilst the glonoine which Dr. Harley took was pure glonoine, obtained from a homœopathic chemist, diluted with 6¾ parts of rectified spirit. Eight drops of this latter solution added to 92 drops of rectified spirit would form (so the homœopathic chemist stated) the solution of glonoine known to homœopathists and described by Mr. Field as glonoine of the first dilution. It would contain one drop of pure glonoine to 99 of spirit.

Our experiments commenced at 12.45 o'clock, at which time my pulse was 80, and my respirations were eighteen in a minute. I began by taking two drops of a solution containing one drop of pure glonoine in 99 of rectified spirit—the solution employed by Mr. Field. It was sweet to the taste and warm, and imparted a flavour or odour somewhat resembling chloric ether. In the course of a minute I felt, or fancied that I felt, some fulness in the head, but was not conscious of any other unusual sensation. At four minutes past one o'clock I took two drops of the solution obtained from Morson's, or in other words, one-sixth of a drop of pure glonoine, which is equal to 17 drops of the solution spoken of by Mr. Field. It was very sweet, and pungently hot to the tongue and throat, giving rise to a burning sensation which lasted several minutes. At six minutes past one my pulse had risen to 96, and I felt, or fancied that I felt, increased fulness about the head, but without giddiness or confusion of thought. My pupils were not affected, and I did not experience any unusual sensation beyond that just referred to. At 1.15 o'clock I took four more drops of Morson's solution, or in other words, one-third of a drop of pure glonoine, which is equivalent to 33⅓ drops of Mr. Field's solution. At 1.18 o'clock my pulse was still 96; my respiration remained tranquil; my pupils were unaffected, and I was not conscious of any unusual sensation, except a sense of slight fulness in the head. As no further symptoms occurred, at 1.30 o'clock I swallowed six drops of Morson's solution, or in other words, half a drop of pure glonoine, which is equivalent to fifty drops of Mr. Field's solution. It was intensely hot to the mouth and gullet, rendering it necessary for me to swallow half a glass of water. I felt somewhat nervous; and for a few moments the surface of my body became covered with a clammy perspiration; my pulse intermitted occasionally, and I experienced, or fancied that I did so, an increase of fulness about the head; but my pupils remained unaltered, and in no other respect did I perceive any difference from the effects produced by the former and smaller doses. In a few minutes the nervousness passed off, and at 1.35 o'clock my pulse was 90 and regular. At 1.40 o'clock my pulse was 86, and my respirations were sixteen in a minute. At 1.50 o'clock my pulse had fallen to 80, or the standard at which it was found before the commencement of the experiments.

Thus within the space of one hour I took rather more than one

drop of pure glonoine, which is the amount contained in eighty drops of the solution spoken of by Mr. Field. This would appear conclusive as to the fact that whether in weak solution (1 in 100) as employed by the homœopathists, or in a strong solution (1 in 6) glonoine does not produce the effects which have been ascribed to it; and that, contrary to what has been stated by Gmelin and implied by Mr. Field in his recent communication, it may be taken with impunity in considerable quantity. Whether the acceleration of the pulse which was observed in the first instance was attributable to the effect of glonoine, is a question which requires further experiments to determine. My own impression is, that it was purely the effect of the nervousness or excitement resulting from the experiments in which we were engaged, for had it been otherwise it is not probable that the pulse would have fallen to its natural standard within so short a period after taking the larger doses. The fulness in the head may have been attributable in part to the same cause, but some discomfort about the head, not amounting to headache, continued for several hours afterwards, and I cannot help thinking that it is fairly referrible to the effect of the glonoine I had taken. I will only add, that for some weeks I had been suffering from slight bronchial irritation, with frequent expectoration of thick mucus, and that since I swallowed the glonoine I have not had occasion to cough or expectorate.

[Dr. Harley says,—]

The effects so graphically described by Mr. Field are scarcely those one would expect to find produced by so small a quantity of a homœopathic drug; and I must candidly admit, that if all infinitesimal doses are equally potent, my ideas of homœopathy require to undergo a radical change. The above-mentioned two drops of liquid were taken from a solution consisting of one drop of glonoine dissolved in ninety-nine drops of rectified spirit; consequently the alarming effects spoken of were produced by only one-fiftieth of a drop of pure glonoine. From another part of the communication of Mr. Field, it would appear that glonoine is a very powerful poison; but, on reading a little further, we find that animals "appear to be almost unaffected by this drug." . . .

Being unacquainted with any substance whose toxical effects are entirely limited to the human organism, I was naturally anxious to repeat Mr. Field's experiments. Consequently I lost no time in procuring at a homœopathic pharmacy a bottle of glonoine, of the strength of Mr. Field's. I began by touching my tongue with the cork moistened with the solution; but experiencing no effect beyond that which usually follows the application of alcohol or ether to the tongue, I boldly put a couple of drops into my mouth. At first I felt a kind of sweet and burning sensation, and soon after a sense of fulness in the head, and slight tightness about the throat, without, however, any nausea or faintness. After waiting a minute or two these effects went

off, and I could not help thinking that they were partially due to imagination. Determined to give the thing a fair chance, I swallowed five drops more, and as these did not cause any increased uneasiness, I took, in the course of a few minutes, other ten drops of the solution. Being at the time quite alone, I became somewhat alarmed lest I should have taken an over-dose, and very soon my pulse rose to above 100 in the minute. The fulness in the head, and constriction in the throat. I thought was more marked than after the previous dose. In a minute or two, however, my courage returned, and the pulse soon fell to 90. The fulness in the head lasted some time, and was followed by a slight headache. Next day I repeated the experiment upon myself by taking ten drop doses, and finding no bad effects to result from them, I tried the substance on some of my friends, without saying what sensations might be expected to arise from it; and I may cite the following as a good example of an experiment unaffected by imagination:—

To Dr. Von F., a strong, healthy gentleman, aged 26, respirations 28, and pulse 84 in the minute, I gave ten drops of the solution. After waiting five minutes without witnessing any effect, I administered to him other eighteen drops of the glonoine in a little water. In about a quarter of an hour the pulse was noticed to be slower; this, however, was, no doubt, caused by his sitting quite still. The respirations remained as before, and neither fulness in the head nor constriction in the throat was complained of. Upon the tongue of another gentleman (a medical man) who was equally ignorant of the contents of Mr. Field's communication, I allowed two drops of glonoine to fall; after waiting five minutes without any peculiar sensation being felt, I gave him eighteen drops of the solution, and in five minutes more, as there was not the slightest effect observable, I again gave him other eighteen drops. The pulse and respirations were carefully watched during a quarter of an hour longer; but as absolutely nothing was either felt or observed, my friend went home. Having been thus unsuccessful in obtaining any decided effects from the employment of glonoine procured at the homœopathic pharmacy, I obtained some of the pure substance from Mr. Morson in Southampton-row. While standing in Mr. Morson's shop, I took by degrees a drop of the perfectly pure material, and found that, on bringing it in contact with the tongue, it at first gave rise to a sweet flavour, which was rapidly followed, however, by a most disagreeable, acrid, burning sensation. The latter lasted during several minutes. Immediately after I had the drop, which was equal to 100 drops of the solution previously employed, I felt my pulse, and found it 105 per minute. I imagined, too, that I felt fulness in the head, and some tightness about the throat; but as these effects gradually passed off in the course of a few minutes, I thought that they were most probably due to fear and imagination.

On the 29th instant, I made, in concert with Dr. Fuller of St

George's Hospital, some experiments with two different solutions of glonoine. One contained one drop of glonoine dissolved in ten of spirit; the other, one drop dissolved in six and three-quarters of spirit. As Dr. Fuller will, in a separate letter, describe the effects produced upon himself by glonoine, I shall limit my remarks to a description of my own sensations. At 12·45, my pulse being 80, my respirations 22 per minute, I took the solution containing one part in six and three-quarters of spirit, a quantity equal to one-sixth of a drop of pure glonoine, which would be equal to sixteen and a half drops of the solution used by Mr. Field. At one o'clock my pulse had risen to 90, but the respirations were about the same. I felt some fulness in the head, and slight tightness about the throat. At 1·5 I took one-third of a drop (= thirty-three drops of Field's solution.) In three minutes afterwards my pulse was 98. The other effects continued as before. At 1·16 I took another half-drop, (= fifty drops of Field's solution,) and in four minutes afterwards, my attention having been directed to another subject, my pulse had fallen to 94. At 1·30 I took a whole drop of pure glonoine, (= 100 drops of Field's solution,) and in six minutes afterwards my pulse had got up to 106 per minute. None of the other effects were increased. Ten minutes later, when I had become convinced that I ran no risk in thus rapidly augmenting the dose, my pulse fell to 78, while the respirations were 18 per minute. I have, therefore, no hesitation in saying, that the effect upon the heart's action was entirely due to fear. The head and neck sensations, however, I think, are too constant to be attributed to the same cause, although I have no doubt the imagination exaggerates them. During the three-quarters of an hour that this experiment lasted, I had taken altogether a quantity of glonoine equal to 199½ drops of the solution used by Mr. Field, and of which two drops were sufficient to produce in him symptoms of narcotic poisoning.

While Dr. Fuller was with me at University College, we gave in the course of fifteen minutes a quantity of an alcoholic solution of glonoine, equal to three drops of the pure substance, to a small sickly looking rabbit. The animal was kept under observation for more than an hour without any effect being observed.

To a frog we gave at 1·20 some of the solution equal to two-thirds of a drop of pure glonoine. At 1·34 he was noticed to be in a convulsion. This experiment, however, scarcely deserves to be mentioned, as it is impossible to say whether the alcohol or the glonoine induced the tetanic state.

Through the kindness of Mr. Spencer Wells, who gave me a quantity of pure glonoine, prepared by Mr. Squire, I was enabled to perform the following experiments. To a middle-sized dog I gave fifteen drops of the undiluted substance, and in three minutes afterwards I gave him other ten drops—in all, a quantity represented by 2500 drops of the solution employed by Mr. Field, and although the animal was most carefully watched during a couple of hours, no effect was

detected beyond what was produced in the mouth by the acidity of the drug.

At 11·45 I put two drops of pure glonoine into the mouth of a frog. At 12·7 he was seized with convulsions. The fore-legs were firmly clasped on his breast, and the hind-legs were stretched straight out. The slightest touch or even blowing with the breath upon him was found sufficient to induce a spasm. The tetanic state differed from that produced by strychnia, inasmuch as the spasms were of very short duration, almost instantaneous, and when the animal was left quiet recurred at regular intervals—eighteen in the minute. In about an hour and a half after the administration of the toxic substance, the frog was found flaccid, and nearly dead. When touched, however, slight spasm could still be induced.

To another frog I gave three drops of pure glonoine, and in twelve minutes afterwards he was found convulsed. I watched him for nearly an hour, and he presented symptoms very similar to those already described as occurring in the previous case; the only difference being that he frequently croaked, and occasionally made a sort of screaming noise. I observed that the mucous membrane of the frog's mouth was somewhat inflamed by the drug.

I may mention that the pure glonoine which Mr. Wells gave me, as well as that got at Morson's, is an oily-looking, pale yellowish coloured liquid, soluble in alcohol and ether; and when first mixed with them yields a perfume similar to that arising from mellow apples. It is insoluble in water, in which it sinks to the bottom like chloroform. It has a sweet burning taste, is very slightly volatile, and inflammable.

In conclusion, I have only to remark, that I have experimented upon ten different gentlemen, with glonoine obtained from four different sources, and that I have not seen any dangerous effects follow its employment when given in the before-mentioned doses, but if taken pure great caution should be used.—*Med. Times and Gazette, April* 3, 1858, *p.* 356.

190.—REMARKS ON DRS. FULLER AND HARLEY'S EXPERIMENTS WITH GLONOINE.

By A. G. Field, Esq., Brighton.

[The experiments performed by Drs. Fuller and Harley seem very contradictory to those by Mr. Field. The following throws some light on the apparently incompatible testimony.]

Gmelin has stated that half a drop of pure glonoine would kill a man.

In my last paper on this subject, I stated that two drops of what the homœopathists call the first dilution of glonoine produced profound coma in me. Drs. Fuller and Harley took very much larger quantities, and produced nothing beyond a headache. Was the action of

the drug less powerful in their cases from peculiarities in the subjects of the experiment, in the substance experimented with, or the conditions under which the experiments were made? Putting aside for the present the hypothesis that idiosyncracy may greatly influence the action of such an agent as glonoine, I think a very reasonable explanation may be found in the great variation in strength to which glonoine is liable, at which we cannot wonder when its mode of preparation is considered. But a far more important cause in determining the extent of its action is to be found in the conditions under which the drug is taken.

In my own case my nervous energy had been much impaired by a hard day's work: for contrary to my usual custom I had walked to all my patients that day, and besides this I had just finished a painful and protracted surgical operation, involving as it did a considerable expenditure of nervous force, added to which the hour had arrived when there was a natural tendency in the brain to subside into that state of unconsciousness in which one-quarter of its life is passed. I have since taken the same quantity of glonoine under different conditions, with no other result than the production of a mere headache.

Having in my experiments on myself experienced the greatest variation in the strength of different specimens of glonoine, I was disposed to think when I read Dr. Fuller's and Dr. Harley's experiments, that they had used a less powerful agent. I therefore called on Dr. Fuller in the morning of April 3, and requested him to take a part of the same glonoine which had affected me. He kindly acceded to my request, but to my surprise he experienced little besides the usual headache, which appears always to result from a small dose.

From Dr. Fuller's I went to a London Hospital, where I heard a patient was undergoing treatment with solution of glonoine for hemicrania; he had been taking one dose of two drops daily, but the medicine had produced no effect on him. I took two drops of his solution, and was but slightly affected by it. By permission of his physician I gave this patient two drops of my own solution. In about a minute he became pallid, felt sick and giddy, his forehead was covered with perspiration, and he sank on to the bed by which he was standing almost unconscious, his pulse failing so as scarcely to be felt. I requested that he might have some stimulant, and after taking a little ammonia the circulation became more vigorous, and I left him in twenty minutes with a marked diminution of his pain, and he expressed a great desire to sleep, a luxury which his sufferings had almost deprived him of the previous nights.

The slight action of glonoine on Dr. Fuller, who was in vigorous health and not suffering from fatigue at the time he took the dose, and the powerful effect produced on the hospital patient, whose nervous energy was reduced by suffering and want of sleep, affords a good illustration of the explanation which I have ventured to give of the apparently opposite results which have been observed.

Some pure glonoine was procured from Morson's, in Southampton-row; this was one hundred times stronger than that, two drops of which produced so powerful an effect on me. One drop of this pure glonoine was given to a mouse, and larger quantities to a calf, cats, and rabbits, without producing any appreciable effect, thereby confirming the conclusion before arrived at that not the glonoine, but the spirit in which it was dissolved, had affected the animals which died in the former experiments.

The curious fact of certain poisons exerting a powerful influence over some animal systems, while harmless to others, is not without analogy. It is stated on good authority by a recent writer that the horse can with safety eat aconite, the goat hemlock, and the rabbit belladonna; and Dr. Livingstone mentions a small African insect, the tetsze, whose bite is fatal to the horse, ox, and dog, but affects man in only a very trifling degree.

My friend, Mr. Lawrence, Surgeon, of Brighton, slightly moistened the tip of his finger with the solution of glonoine (1 per cent.) and applied it to his tongue; he took only just sufficient to taste the fluid. In about three minutes he experienced a "muddled" sensation in his head, and felt as if he could have easily gone to sleep in the operating room, where we then were; he believes that had he taken a little more he must have fallen asleep; his appetite failed for the rest of the day, and he passed a restless night. Mr. Lawrence regards the effect produced on him as the more remarkable that he has very little susceptibility to the influence of the common narcotic drugs.

Case 5.—G. F., aged 24, epileptic eight years. After a fit on the 4th of March, he slept nearly an hour, and then awoke in a state of violent mania, struggling with such violence that it was with difficulty two persons could keep him in bed; with eyeballs projecting, and mouth half opened, he looked as if he were contemplating some afflicting sight, while he rapidly reiterated an unmeaning monosyllable, doe-doe-doe, in a painfully plaintive tone. In this state I was called to attend Mr. F. I touched his tongue with a cork moistened with solution of glonoine, and after the third application his struggles ceased, and he sank into a tranquil sleep, from which he awoke refreshed and well the next morning.

In this case the rapidly acting sedative influence of the medicine was most marked, and the exceedingly small dose required made it peculiarly valuable, as no bulky remedy could have been taken owing to the excited condition of the patient.

Case 6.—Mrs. R. sent for me in the night of March 17, on account of severe neuralgic pain in the lower part of the cervical region of her spine and right arm. Her sufferings had been severe for some hours, and still continued, when I applied less than a drop of glonoine solution to her tongue. In a short time this patient complained of a peculiar pain and pulsation in her head; she became drowsy, and buried her head in the pillow, but retained sufficient consciousness to

request that I would not leave her while she felt "so strange." These effects lasted about ten minutes, during which she had several attacks of general rigor, which were succeeded by nausea and coldness of the extremities; but the neuralgic pain was quite subdued for a time, though it returned in a much smaller degree.

Case 7.—Mrs. L. aged 28, weak from undue lactation and neglect of air and exercise, consulted me, March 22, on account of supra-orbital neuralgia, from which she had suffered more than a week; the pain usually commenced at six o'clock in the morning, and continued till eleven or twelve. A quarter of a drop of solution of glonoine was given, and the pain ceased for that day almost immediately. She recovered in a few days under appropriate treatment.

Case 8.—Mrs. D., aged 36, under treatment for dyspepsia. March 29, she complained of severe hemicrania, which had troubled her for many days. She took about a drop of solution of glonoine in perfect ignorance of any effect it was likely to produce. In a minute or so, she reclined on a sofa to save her from falling, put her hand to her forehead where she experienced a pulsating pain. In a few minutes more her head was free from pain of any kind, and there had been no return two days after.

Case 9.—Miss V., aged 28, frequently suffered severely from what she calls nervous headaches; these she has been in the habit of curing with Indian hemp. On the 1st of April, a violent headache was suddenly produced by a fright caused by her horse; she was kept awake nearly all night, and the following morning she requested me to give her something for the pain, which continued severe. Her old remedy had been discontinued by my advice. I applied a small quantity of the dilution of glonoine to the tip of her tongue, which produced scarcely any effect. Two drops were then given, and in about a minute she became giddy, and said it is just like taking chloroform; she lay back in a chair, supporting her forehead with her hand, trembled, and said faintly that her feet were cold: her pulse rose to 100—before it was 80. In about two minutes she recovered, complained of great tightness at the root of the neck, which soon subsided. Her headache was gone; and in half-an-hour she left my house feeling unusually well and "bright," as she expressed it.

Forcibly struck by the slight effect produced in the last two cases by what, from my former experience, I should have considered a powerful dose, I myself took two drops of the solution, and only experienced a sense of fulness and throbbing in the head; my pulse rose twenty in the minute. The experiment was repeated on a married lady, aged 32, with a similar result. The cases 8 and 9 had been treated with a fresh specimen of the glonoine.

From what has been observed it would appear that glonoine is liable to great variation in strength. That under ordinary circumstances of health and vigour it may be taken in small quantities with

safety, but that when the nervous energy is much diminished by fatigue or suffering it may act with the greatest power.

[Mr. Augustus James, of University College, with regard to nitro-glycerine, says, in a letter to the editor of the 'Medical Times and Gazette,'—]

I saw my brother take one minim, and in half-an-hour, as no serious effect followed, after counting my pulse, which was eighty, I took the same dose. We now purposely changed the subject of conversation. In the course of a few minutes I exclaimed, "I feel drunk." This sensation was quickly followed up by a dull aching pain at the back of my head, which was alternately better and worse, each accession becoming more and more severe. It soon extended to the forehead and the back of the neck, in which there was a decided feeling of stiffness. I also experienced some difficulty of deglutition, succeeded by nausea, retching, and flatulence. A profuse perspiration ensued, and in a quarter of an hour the symptoms began to abate, but I continued dull and heavy. My pulse was now 100. Considerable headache remained, which increased in the after part of the day to such an extent that at six o'clock I was compelled to go to bed. At break of day I was not relieved, but after a few hours more sleep I arose in my usual health. I have only to add that I made this brief sketch of my own feelings before reading the contradictory statements which have appeared.—*Med. Times and Gazette, April* 10, 1858, *p.* 384.

191.—*Treatment of the Drowned.*—Dr. Cornstock is surprised in the recent discussions on this subject that no mention has been made of applications to the nose. In one of the instances of longest submersion on record, the first signs of recovery followed the pouring ʒ½ of sp. ammon. aromat. into the nostrils, and thrusting a feather dipped in ammonia as far as it would go. Dr. Wistar declared that the most successful treatment consisted in stimulating enemata, suppositories of mustard and red pepper, and a plaster of these substances applied to the anus and perineum. He believed that life lingered longest in this part of the body.—*Boston Journal.—Medical Times and Gazette, Feb.* 6, 1858, *p.* 147.

192.—ON EXCISION OF THE CUBOID BONE IN OBSTINATE CASES OF TALIPES VARUS.

By Samuel Solly, Esq., F.R.S.

[In June, 1852, a native of New Granada, South America, aged 21, came under Mr. Solly's care with talipes varus of both feet, in its worst form, the left foot, however, being more misshapen and inverted than the right. The patient was very difficult to control, and pecu-

liarly sensitive of pain. In both feet the tendons of the tibialis anticus, posticus, flexor communis, and flexor longus pollicis, were divided; also the plantar fascia. After this instruments were used and great pains taken with the case, but the patient was restless and would not submit to the pressure exercised by the instruments. Mr. Solly at Dr. Little's suggestion determined to remove the cuboid bone of the left foot whilst the patient was under the influence of chloroform; a free incision was made, and a wedge-shaped piece cut from its centre by a sharp gouge, without opening any articulation. As this did not produce much effect, the articulation, with the metatarsal bone of the little toe was opened, and the anterior part of the bone removed. The foot could immediately be placed in the proper position.]

From this fact it was clear that if the mechanical apparatus could have been then and there applied, and the foot retained in this amended position, the cure would have been completed with the healing of the wound. Having, however, to wait three weeks before pressure could be applied, and then only at intervals, most of the advantage expected to be derived from the excision was lost. This appears to me one of the greatest objections to its performance. If the operation should, from any peculiar circumstances, as in the present case, be again deemed advisable, I do not recommend the plan of gouging away the bone, as adopted in this instance. I should advise the removal of the whole bone, for although an incision into the numerous joints which unite it to the rest of the tarsus is a formidable proceeding, the effect of the operation so performed will be more permanent. The very reason which induces me to advocate the use of the gouge instead of the knife in the removal of carious bone renders this proceeding, in the case of deformity, objectionable. The bone left in either case reproduces new tissue nearly equivalent in bulk to that removed. In the case of disease this reparation is desirable; but in that of deformity I need hardly say it interferes with the object of the excision.

[No constitutional disturbance followed, and the wound healed in fourteen days; but owing to the tenderness remaining no apparatus could be placed on the foot for a week longer. Ultimately the soles of both feet could be placed fairly on the ground, and the deformity, though not quite, was nearly removed.]

With regard to the effect produced in this case by the removal of the cuboid bone, I do not consider it is such as to encourage the profession to perform the operation except in some few old and obstinate cases that have resisted every other treatment.—*Medico-Chirurgical Transactions*, 1858, *p.* 119.

193.—ON THE DIAGNOSIS AND TREATMENT OF ULCERS OF THE TONGUE.

By JAMES PAGET, Esq., Assistant-Surgeon to St. Bartholomew's Hospital.

[Ulcers of the tongue may be thus classified:—]

1. Simple. *a.* From superficial inflammation. *b.* From constant irritation, as by a rough tooth.
2. Aphthous.
3. Mercurial.
4. Strumous.
5. Syphilitic: *a.* superficial; *b.* deep; *c.* inherited.
6. Cancerous; *a.* superficial, or papillary; *b.* deep or massive.
7. Tuberculous.

1. (*a.*) Simple superficial ulcers of the mucous membrane commonly occur, with a general florid bright congestion of the surface of the tongue, in dyspeptic people, and those who habitually eat and drink too much. They are usually small, superficial ulcers or abrasions, very sore and sensitive, with no definite shape or plan. They are not likely to be confounded with any other ulcers, unless with the superficial syphilitic. From these they differ in their acute course, in their being about the tip, rather than the sides of the tongue, and in the active congestion of the mucous membrane which is generally associated with them, and only seldom, or as by accident, with the syphilitic.

The obvious remedy of ulcers of this kind, when they are due to excess, is reformation of diet and active purging. If they survive these, they should be touched with nitrate of silver. When they are only occasional consequences of habitual dyspepsia, the same local means will be useful, but, of course, they cannot be finally cured except by the remedy of the dyspepsia.

When these ulcers occur at or near the frænum of the tongue, they are sometimes so small that they are apt to be overlooked; yet they are extremely painful, and may endure long, or frequently recur.

(*b.*) Ulcers of the tongue, due to the irritation of rough or sharp-edged teeth, vary much in appearance, according to the general condition of the patient, their date, and many other conditions. They may be like rough excoriations, with shreddy foul bases and borders, ill-smelling, surrounded with swelling, and a soddened, but not hardened, state of the tongue. Or, with similar general characters, they may extend deep into the tongue; the surface of the tongue, and of the adjacent part of the gums, being in both of these cases covered with a thick creamy or pasty layer. Or, again, while the rest of the tongue may be nearly healthy, the ulcer of more chronic progress may be well-defined, regular, clean at its base, with upraised, rounded, and hard "callous" borders.

Due regard to the teeth will usually determine both the diagnosis and the remedy of these ulcers. But, it must be noted, that so long as the general health and digestion are good, the tongue may tolerate without damage the irritation of rough teeth. Patients, therefore, knowing that their teeth are not unusually bad, will ascribe the ulcer of the tongue to any cause but them; and, even after the removal or smoothing of the teeth, the ulcers may not heal till the general health is improved. And, again, cancerous disease may be determined to a particular portion of the tongue by the constant irritation of a tooth; and extraction will only for a time diminish the activity of the disease.

2. Aphthous ulceration of the tongue may scarcely need description, for its frequency in children may make it easily known when, more rarely, it is seen in adults. With general heat, increased secretion of saliva, and general redness of the mucous membrane of the tongue, (the lips and gums also commonly participating,) aphthous ulcers appear as small, flat, circular, or oval ulcers, following vesicles. They are sometimes single, and may then be nearly half an inch in diameter; but more commonly they are clustered about the fore part of the tongue, or appear in successive crops. Their bases are smooth, greyish or yellowish, with very thin adherent slough; and their borders are well defined, not only by the cleanness with which the superficial layer of mucous membrane is removed, but by the bright crimson areola which surrounds them without elevation or hardness.

With these characters, there is usually active gastric or intestinal irritation. The healing of the ulcers will follow that of the irritation, but will be helped by the application of nitrate of silver in substance or strong solution.

Aphthous ulcers of the tongue may be confounded with the simple and the syphilitic, superficial ulcers. The safest distinctions will be found in their acuteness, the sloughs on their bases, the bright areola, and the attendant active irritation of the stomach or intestines.

3. Mercurial ulcers of the tongue, such as occur in or after ptyalism, may generally be known at once, by the attendant affection of the gums, with pasty deposits at the teeth, by the peculiar fetor from the abundant decomposing saliva, by the general enlargement and sodden state of the tongue. In a former paper I have spoken of their treatment.

4. Strumous ulcers of the tongue (as I believe they may fairly be called) are rare. They occur most frequently in persons under 20, and I have not seen an instance after 30. Their usual chronic course is, that they commence in one or more lumps in the substance of the tongue, lumps that are deep-set, firm, compressible, elastic, ill-defined, and little, if at all, painful. With slow progress each lump seems to proceed to central suppuration, and thence to ulceration. Hence is derived either a small irregular opening into the central cavity, or, more commonly, a larger irregular ulcer, with a flat tough base, unequally excavated, and with thick unequal overhanging margins. The

ulcers may slowly extend, but they generally remain long stationary, just not healing; and the parts about them become thick, tough, and large, as if with chronic inflammation in all the adjacent textures of the tongue. Even after the ulcers are healed, I think the enlargement may increase, and produce a peculiar form of hypertrophy, with toughness, pallor, and an uneven seamed and scarred surface.

The likeness is evident between this disease, in all its essential features, and that which we recognise, in other parts, as strumous abscess and strumous ulceration. This is not merely chronic abscess, for abscesses of very slow progress do occur in the tongue, and when they are emptied they heal quickly, and the recovery is complete. But, on the other hand, these strumous diseases of the tongue differ from both the syphilitic and the cancerous (with which they are most apt to be confounded), by the ulceration being usually preceded by distinct suppuration. Other diagnostic characters are, that the induration that accompanies or precedes the strumous ulcers is never intense or well-defined; it is, rather, a toughness with diffuse enlargement, not nodular or warty, not painful, not usually accompanied with lymphatic disease. These characters, however, may be insufficient to distinguish strumous ulcers from those of inherited syphilis, to which I shall presently refer. The diagnosis may be assisted by the existence of other marked strumous affections, or, if not by these, by the test of treatment. Iodide of potassium will quickly heal the syphilitic ulcers; but will very slowly, if at all, do good to the strumous. The only remedies for these are the same as for strumous disease, of similar type, in any other part: especially, I think, the cod-liver oil.

5. Syphilitic ulcers of the tongue occur in at least two very different forms, the superficial and the deep. The former are related, in their nearest analogy, to the cases of syphilitic psoriasis of the palms and soles; the latter to the deep ulcers which follow subcutaneous indurations (or gummata), such as one sees especially about the upper part of the leg, or more rarely in the lip or cheek. The superficial, occurring usually with similar disease of the lips, are among the later and most inveterate secondary symptoms; the deep are tertiary. In what measure any of them may be due to mercury or iodine, as well as to syphilis, I cannot say; but I have seen no reason to believe that either mercury or iodine alone will produce any of them.

(*a*.) Of the superficial ulcers, the most common are such as appear at the sides of the tongue. Some of these, indeed, may not deserve the name of ulcers; for they have thin coverings of epithelium, and do not bleed when even roughly touched. They may be like little oblique or starred fissures in the edge or tip of the tongue; or may appear as pale, bald, raw patches on the mucous membrane; or as such patches, with deeper ulceration at their centres; or again, there may be single, flat-based, defined, and thin-bordered ulcers through nearly the whole thickness of the mucous membrane; and with any

of these forms of the disease there may be round the ulcers little groups or clusters of florid prominent papillæ.

All the superficial syphilitic ulcers of the tongue are very sensitive and sore; but there is little increase of vascularity in or near them, except in cases of accidental complication, through gluttony, intemperance, or other exciting causes. In their long duration, nearly the whole surface of the tongue may become opaque-whitish, or pale purple, smooth, as if without papillæ, and fissured, and the whole organ may become large and thick.

Except the worst cases of cachectic syphilitic ulcers, I believe no affections of the kind are so nearly incurable among out-patients as these forms of disease of the tongue. Among those who cannot use the moist mercurial fumigation (and such are most out-patients), I believe that the best general plan is to give a grain of calomel and half a grain of opium every night, for not less than two months. This plan will certainly cure some, and do harm to none, and improve many whom it does not cure. For local applications, none seem to give more comfort than the occasional touching of the sores with the solid nitrate of silver, and the frequent washing of the mouth with a lotion containing one or two drachms of the diluted nitric acid in a pint of water.

I have already said that simple superficial ulcers of the tongue may generally be distinguished from the syphilitic, chiefly by the concomitant florid inflammation of the mucous membrane. Similar inflammation, accidentally associated with the syphilitic ulcers, may make the diagnosis doubtful; but the doubt is not practically important; for a rule holds here, as in many other cases; namely, that it is not advisable to give specific medicines while active inflammation accompanies specific disease. The inflammation must be treated first, then the specific disease; and in the case of superficial ulcers of the tongue, if they do not quickly heal when the inflammation passes by, the diagnosis of syphilis is made more clear.

(*b.*) In the case of the deep syphilitic ulcers, we can commonly see or hear of one or more preceding lumps of firm, inelastic indurations, well-defined, enlarging the tongue, and covered with tense, adherent, smooth, and glossy mucous membrane. The usual seat of the induration is in the upper part of the tongue, often extending far back, but rarely affecting its borders or inferior surface, and still more rarely reaching the floor of the mouth. The induration may, for two or three weeks, only enlarge; under treatment it may clear away; but more commonly it softens, and then either sloughs or ulcerates at its centre. The ulcer which succeeds is deep, excavated, sometimes angular, or cleft-like, with no regular form, bounded by the remains of the induration. Its borders may at first be ragged and sloughy; but they soon become smoother, and then appear as edges of thickened and hard mucous membrane, overhanging the cavity of the ulcer, and sometimes nearly meeting over it, so as to need to be disparted that

the cavity may be seen. In this state the ulcer has no great tendency to spread; its disposition is rather to become indolent, half-healing, with increasing toughness of its boundaries, but without material enlargement of the tongue.

(c.) Ulcers so like these that I can name no difference, may be found in the tongues of young persons that have had no primary syphilis. I have already said that I believe them due to inherited syphilis. These cases, therefore, differing from the last-described only in their mode of origin, may neither need nor admit diagnosis from them; and the treatment of both is the same.

The other forms of ulcers of the tongue, with which these may be confounded, are the strumous, cancerous, and tuberculous. The diagnosis of the first has been already pointed out; that of the last will follow. From cancerous ulcers, the deep syphilitic may generally be known by their induration being less intense, not nodular; the mucous membrane over or near them smooth or glossy, not warty; their borders overhanging their bases, not everted or nodular; by the little pain that attends them if they are not inflamed; by their being at, or tending towards, the dorsum of the tongue, rather than its sides or the floor of the mouth; by the absence usually of sympathetic disease; by their progress to ulceration occupying usually less than a month. Of course, a history of syphilis may help the diagnosis; but, the less it is relied on the better, unless other syphilitic affections be actually present. The age of the patient may also have some weight; the younger the less the probability of cancer.

If all these indications for the diagnosis fail, it may almost securely rest on the effect of treatment. Iodide of potassium will quickly cure, for a time, the syphilitic ulcer, but will have only a slight and transient influence on the cancerous one.

It is possible that a difficulty might happen in the diagnosis of syphilitic or other indurations, and fibrous or fibro-cellular tumours in the tongue. The distinction may be found in the tumours being of slower increase, moveable, and covered with healthy mucous membrane that slides over them.

6. Of cancerous diseases of the tongue one may observe two chief forms, both epithelial; namely, the superficial or papillary, and the deep-seated or massive; and, although cases may occur that confuse them, they are in general sufficiently distinct.

The superficial cancers before ulceration resemble most nearly the syphilitic condylomata and other diseases of the papillæ and mucous membrane, which will be mentioned in the next paper. The best distinctions will be found, generally, in that the cancers are more warty, or manifestly papillary or tuberculated, and more suddenly upraised and defined at their borders, than mere indurations of the mucous membrane are; and are more deeply seated in the very substance of the tongue, and thicker, (being seldom less than a quarter of an inch thick,) and have more defined and harder bases than the condylomata

have. Generally, too, the cancers, even before ulceration, are attended with more afflux of blood to the adjacent parts of the tongue, and with a larger flow of saliva, and more pain both in themselves and about the ear, and jaw, and side of the head, than any of the diseases that at all resemble them. In their ulcerated state, the superficial cancers have additional diagnostic signs in their central ulcerated surfaces, or fissures, or excavations, surrounded by well-defined induration, the extent and depth of which are not diminished by the extension of the ulceration. The base of the ulcer is generally hard and uneven, coarsely granular, papillary or nodulated; and the borders are, generally, lobed, like pieces of conglomerate gland, sinuous, upraised, and, if the disease is active, everted over the surrounding surface. If the case can be watched, all these characters become more marked, and others yet more distinctive are added; such as the fixity of the tongue by the adhesion of the base of the ulcers to the adjacent parts, the enlargement and hardness of the submaxillary lymph-glands, a condition very rarely found with any other ulcer of the tongue, unless it be acutely inflamed. Late in the disease, too, there will be a cachectic aspect; but I have never seen this till the other signs of cancer were so well marked that there was no need of it for diagnosis.

The massive, deep-seated cancers of the tongue are very rare. Before ulceration, and while the mucous membrane is not involved, they may resemble the syphilitic lumps, or the fibro-cellular tumours, or, with far less likeness, the deposits that precede the strumous ulcers; but, of all these, I have already named the diagnostic signs.

I have little to say of the treatment of cancers of the tongue. As a general rule, it is right to remove them whenever this can be done safely and freely, and the écraseur is an admirable instrument for the operation.

7. Tuberculous ulcers of the tongue are rarer than any of those now described. The best case I have yet seen was in a policeman, 37 years old. Nearly the whole of the right lateral surface of the tongue was ulcerated. The outline of the ulcer nearly followed the borders of the tongue, but was in parts sinuous, or sharply eaten out. Its border was abrupt, neither elevated nor everted, nor undermined, surrounded with a fluid areola; at its base there was a slight elastic and pliant induration. The base of the ulcer was on the level of the superficial muscular fibres; appearing, in some parts, banded, as if the muscular tissue were exposed, in others, granulated; only at its posterior part the base was more deeply excavated. The disease was painful, attended with profuse flow of saliva, and very difficult use of the tongue.

In six months, what seemed at first a little pimple had led to this condition. The characters of the ulcer were such as I had seen in no other disease of the tongue; they were very like those of tuberculous ulcers of the intestines; but it might have been impossible to distin-

guish the affection as tuberculous, if it had not been associated with pulmonary tuberculosis. With this the patient died; and the ulcerated part of the tongue, examined after death, showed no mark of cancerous disease, but exact resemblance to distinct tuberculous ulceration of the vocal cords.—*Med. Times and Gazette, May* 15, 1858, *p.* 500.

194.—*Most Extensive Varix.*—When attending one of Mr. Porter's Lectures on Surgery, delivered at the Royal College of Surgeons in Ireland, we saw a drawing which he exhibited of a man's leg and thigh affected with varix, in which the dilated veins were represented like coils of ropes, of nearly an inch in diameter. We were especially reminded of this drawing on seeing an elderly woman brought into the operating theatre of University College Hospital on the 28th of April, the veins of whose left leg, but especially at the lower part of the thigh, were dilated to the size of small ropes. This was treated in the usual manner adopted by Mr. Erichsen, of applying pins under the veins, being careful not to puncture them, and then sutures over the pins. Six were applied on the right leg and thigh at its inner side, and three on the left leg, the varicose veins of which extended to the dorsum of the foot. The success of this plan of treating varicose veins may be judged of by the number of cases coming for treatment at this hospital, all of which are radically cured without the occurrence of even an unfavourable symptom. During the past two or three years we have seen upwards of seventy cases so treated. In the majority, Mr. Erichsen has divided the obliterated vein subcutaneously between the pins some six or seven days after the operation—a proceeding first recommended by Mr. Henry Lee, of King's College Hospital; but it is found that obliteration is complete without necessarily resorting to this latter procedure.—*Lancet, May* 15, 1858, *p.* 480.

195.—*Corrosive Collodion in Nævus.*—Dr. Gosfield reports, that he has derived great benefit from the employment of this substance (corrosive sublimate one part, and collodion eight parts) in the treatment of nævus. The eschar falls off from the tenth to the fourteenth day, and is not followed by suppuration. No pain is produced, and scarcely any cicatrix is left. For very small nævi one pencilling is enough, but in larger ones this has to be repeated: and in these it is best to effect their destruction gradually.—*Berlin Med. Zeitung.*—*Med. Times and Gazette, April* 24, 1858, *p.* 434.

196.—PSORIASIS OF THE MATRICES OF THE NAILS.

(Under the care of Dr. HARE, University College Hospital. Reported by Mr. FREDERIC B. WHITE.)

It is curious how cases, in themselves rather rare, occur sometimes in clusters. Almost every one can call to mind instances of this kind. A rather unusual case occurred at University College Hospital a short time since, in which psoriasis affected the matrices of the nails only, and in which the diagnosis of course rested solely on a careful examination of the deposits under the nails.

A case connecting in an interesting manner the example just referred to, with the more ordinary form of the disease, is at present under the care of Dr. Hare, at the above hospital.

The patient is a woman, aged 28, and on admission she presented but slight traces of the disease at any other part excepting the nails, the few spots she had being on the arm and forehead. She was, however, in the hospital twenty years ago, under treatment for psoriasis, which affected the whole body. She left much relieved after having been for 13 months an in-patient, but has been liable to slight recurrences of the disease ever since.

Her attention was first drawn to the nails of the great toe (which are the only ones diseased on the feet), on account of the pain caused by any exertion. These seem to have been more severely affected than those of the hand, the disease being probably aggravated by the pressure to which they were subjected in walking.

The scales were deposited in such abundance, as (unlike in the former case) to entirely separate the connexion between the nails and their matrices, so that they have been cast off and renewed three times.

On the right hand the matrix of the thumb, and on the left those of the middle and ring fingers are also similarly, though not so severely, affected. Thus there was also the usual tendency to symmetry, which is so generally observed in psoriasis, manifested in the toes, though not so clearly in the fingers. It may be remembered that in the former example the symmetry was very distinct.

This being the condition of the patient, Dr. Hare put her upon the plan of treatment which he has found to answer very well in cases of psoriasis, viz., liq. potassæ in half-drachm doses, and liq. arsenicalis in five-minim doses, three times daily, in water. She is, under this treatment, rapidly improving, the disease having almost entirely disappeared.—*Med. Times and Gazette, April* 24, 1858, *p.* 426.

197.—ON THE USE OF ROTTLERA TINCTORIA IN TÆNIA AND OTHER INTESTINAL WORMS.

By Dr. J. S. RAMSKILL, Physician to the Metropolitan Free Hospital.

[Kamala, or Kameela, is a brick-red powder, resembling lycopodium in its physical properties. It is brushed from the surface of the fruit

of one of the Euphorbiaciæ, a native of India. By the microscope, it is seen to consist of small glandular stellate hairs and remains of stalks, leaves, &c. It yields an admirable and effective tincture. (Compare with an article by Dr. Alexander, 10th Foot, vol. xxxv., p. 366.)]

According to my experience thus far, the alcoholic preparation of kamala is more uniformly effective than oil of male fern or than spirit of turpentine, and infinitely less disagreeable than either. In no case where a tænia was known to be present in the intestinal canal, evidenced by fragments occasionally passing away, has it failed to effect its expulsion; and in most cases where the head of the worm has been carefully looked for, it has been found.

Case 1.—On March 3rd, John F——, aged twenty-two, residing in St. George's in the East, was admitted a patient of the Metropolitan Free Hospital, with tapeworm. He first observed that he passed fragments of them six years since. Has passed as much as eleven yards at once; very rarely passed a week without having seen fragments. Formerly was at sea, and lived for long periods on salt meat, both pork and beef; likes salt and vegetables. Has taken turpentine, which did good for a few weeks; objects to take it again. Ordered, tincture of kamala, two drachms; distilled water, 4 ounces. To be taken night and morning. To have three doses.

March 6th. By some mistake, the patient swallowed the tincture without water. Felt no result from the first or second dose, but vomited the third, at the same time three or four series of links some inches long passed away, including one tapering to a point (this he had been asked to look for.) To repeat the three doses in water.

10th. The first dose caused purging; the second, violent diarrhœa, and vomiting for forty-eight hours. No worm nor fragments passed. Has now eczema of the scrotum, which he insists has been caused by the medicine.

Case 2.—Morris H——, aged sixty-three, was admitted a patient of the hospital on March 6th. He lives in Glasshouse-fields, Ratcliffe-highway; has had tapeworm five or six years, and has passed long pieces after taking turpentine. This drug has often cured him for six months, but never for a longer period. He is not fond of salt nor of vegetables; eats pork occasionally; suffers considerably from epigastric nervous sensations, faints, &c. Ordered, tincture of kamala, two drachms and a half; water one ounce: to be taken night and morning. After the second dose some "thousands of bits came away;" the third and last dose purged him very much, and made him feel sick, but he did not vomit. No head found, probably on account of carelessness in the search for it. The bowels continued irritable for some days, but no more fragments of tænia appeared.

Case 3.—Mary P—, aged twenty-one, admitted March 6th. Had tapeworm two years; is very feeble; appetite voracious or absent; complains greatly of epigastric fainting; dislikes salt, scarcely ever

eats it with food; always fond of pork, eats it frequently. Ordered, tincture of kamala, two drachms; water, four ounces; to be taken night and morning. The physic operated six times; no pain. no vomiting; worm passed within twelve hours after taking the first dose; head found.

On the 17th she had not passed any further fragments, and observed that she felt better in health than she had done for years.

Case 4.—Emma H—, aged twenty-four, resides at Stepney; admitted a patient of the hospital on March 6th. She first saw fragments of tænia in the evacuations three years ago, and has seen them occasionally ever since. Suffers frequently from fits of "retching, lasting four or five hours together," and is not by any means able to stop it. She attributes this to the presence of tænia. Has suffered from it about three years—i. e., since about the time she first discovered the fragments of worms; likes salt, and often eats pork. Ordered, tincture of kamala, two drachms; water, four ounces; to be taken night and morning for three times.

March 10th. After taking the second dose a great number of fragments passed; none after the third; did not find the head, perhaps did not examine sufficiently closely. She had no pain, purging, nor vomiting, but felt sick, and suffered much for the two days when taking the medicine with headach. To have three three-drachm doses of the tincture as before.

17th. The physic has made her violently sick, but it was not returned; no diarrhœa. She has not seen any more segments of the worm.

This patient has for the present disappeared, so that it cannot be determined whether the retching was caused by the tænia.

Case 5.—A. L—, aged thirty-six, resides in Whitechapel. First saw that he passed portions of tapeworm three years ago; has suffered during this time with all sorts of nervous feelings; is "always in a twitter;" he is a member of the Jewish church; they do not eat pork, he dislikes salt, and takes little vegetable with his dinner. Has taken turpentine three times; this drug punished him severely; he could not for a time pass urine. Has also taken the oil of male fern, after which he vomited greatly; he was much purged, and became delirious for seven or eight hours. He was ill for three weeks afterwards, in bed, and under treatment.

March 20th. Tincture of kamala, two drachms; water, two ounces, night and morning (three doses.)

23rd. Saw three or four joints after the second dose; no vomiting nor diarrhœa. On examination I find he has by mistake only taken one-drachm-and-a-half doses. To increase each draught to three drachms night and morning.

26th. The first dose caused vomiting, but the medicine was not returned. After the lapse of half an hour, twelve yards of the worm, including the head, was passed. The second dose caused vomiting

and diarrhœa, as did also the third, no further segments of worm passing.

Case 6.—Geo. W—, aged eighteen months, admitted on the 20th of March. The child was weaned at five months, owing to the mother's illness. Fragments were first passed a week ago, the same as specimen brought, which was a joint of a full-sized tænia. Some days several joints—that is, five or six, passed. The child has "fallen away very much:" it is always craving for food or drink; it ate meat at six months old; is very fond of it now; has eaten pork. Ordered tincture of kamala, six minims; water, two drachms, night and morning.

March 27th. Some eighteen or twenty segments of worm have passed; no diarrhœa or sickness; the head of the worm has not yet passed.—*Lancet, May* 15, 1858, *p.* 476.

198.—*Arsenic in Chorea.*—Dr. Rice states that he has of late treated severe cases of chorea with great success by means of arsenic, the treatment occupying only from two to six weeks. He says:—"I am no believer in specifics, but I think arsenic is as sure to cure chorea as bark is to cure ague; the remedy must be watched and used with caution, and then it is entirely safe." He employs Fowler's solution, giving other medicines as adjuvants as the case requires them.—*Boston Journal.—Med. Times and Gazette, May* 8, 1858, *p.* 486.

199.—*New Operation for Artificial Pupil.*—Mr. Critchett has recently adopted at the Moorfields Ophthalmic Hospital a mode of operation, where it is wished to displace the pupil, which is, we believe, novel. Instead of drawing out and snipping off a portion of iris, he draws it out and secures it by a fine ligature from slipping back. It may, perhaps, at the first mention seem that the result must be nearly the same as if the scissors were used, since the portion included in the ligature will slough away. There is, however, another point in Mr. Critchett's proposal which indeed constitutes its main feature. It has long been an aim with ophthalmic surgeons to discover some mode of operating by which the natural pupil should be simply displaced to the elected position without laceration of its margin. This was the end sought to be obtained by the ingenious suggestion of a surgeon of Nantes, to remove a small portion of cornea near its circumference, and then allow the iris to bulge and become adherent to the cicatrix. This latter mode of operating has been frequently adopted of late by Mr. Bowman and other English surgeons, and we have seen some excellent pupils obtained by it. It is of course the substance of the iris near its circumference which bulges into the wound, not its pupillary edge. Now, Mr. Critchett aims to exactly imitate this process, with the advantages that no portion of the cornea is excised, and that the result is much more certain. Having made an incision close to

the corneal edge sufficient to admit of Leur's forceps, the iris is seized just within the opening (that is, very near to its attached border), and is gently drawn out until enough is prolapsed to allow of the application of the ligature. The ligature prevents all chance of the return of the iris which might otherwise follow. Mr. Critchett has now performed it in four instances, and last Friday Mr. Bowman also adopted it in a case under his care. It is, of course, best adapted for cases of leucoma, &c., where the iris itself is not diseased. If the pupil have strong adhesions, one or other of the numerous older methods would be better suited.—*Med. Times and Gazette, May* 8, 1858, *p.* 480.

200.—*Belladonna in Orchitis.*—M. DE LARUE recommends the following application, which, he says, promptly relieves the pain, and leads to a cure in a mean period of 8 days. Lard, 60 parts; aqueous ext. of belladonna, 16 parts. It should be applied gently every 2 hours in considerable quantity, the parts being afterwards covered with a linen compress, which is to remain unchanged.—*Rev. Med.* —*Med. Times and Gazette, Feb.* 13, 1858, *p.* 175.

201.—*Discolouration of the Conjunctiva with Nitrate of Silver.*—[It is a reasonable inference, from the experience gained in photography, that the hyposulphite of soda would remove the staining of the conjunctiva from the prolonged use of nitrate of silver. Accordingly, at the Royal London Ophthalmic Hospital, Mr. Dixon has lately tried it in a case of this nature, in which the discolouration was considerable.] Mr. Dixon first tried the effect of a solution of cyanide of potassium, beginning with five grains to the ounce, and, as this did not produce irritation, going on to double that strength. The solution was applied twice a-day by means of an "eye-glass," so as to ensure a prolonged contact with the conjunctiva. After several months, no improvement appeared to have taken place. Mr. Dixon then tried a solution of hyposulphite of soda (gr. x ad ℥j.), applied in a similar manner. The patient has been using the latter remedy for two months, and, even with the weak solution, the improvement has been considerable; the conjunctiva has, in part, become of a natural colour, and the discolouration is altogether much reduced. The treatment is continued, with a proportion of the salt of double the strength of that originally ordered. It is probable that a still stronger solution of the hyposulphite of soda might be safely employed, for its use has hitherto appeared to cause no irritation.—*Ophthalmic Hospital Reports, Jan.* 1858, *p.* 51.

202.—*Tinea Ciliaris.* By J. F. STREATFIELD, Esq.—In hospital practice, the treatment of this disease is rather unsatisfactory. It is chronic, and of little inconvenience to the patients,—the treatment

is tedious, and they find the remedies difficult to be applied. To these neglected cases of long standing, the following methods are well suited:—In the first place, the expedient "fomentations to be used frequently to the eyes," ensures the necessary cleanliness, and is easily employed by the patients. To remove the old incrustations of the wide ulceration about the roots of the lashes, at first, I employ a pair of forceps, that meet only at their extremities, which are broad and blunt—the lid is steadied and slightly everted with one finger, and with the forceps the scab is seized close to the edge of the lid, and with slight traction, without closing the forceps, it is altogether detached, without bleeding, and with, perhaps, less pain than by any other means. It should not then be drawn over the whole length of the lashes, at the risk of removing them with it; but, when detached, left; and the lashes cut off close to their roots, wherever the disease exists. To obviate the apprehensions of some patients, it is advisable, before using the scissors, to bring them into contact with the skin of the lid for an instant previously. The lid should be then slightly everted, wiped with soft rag, and the whole of the raw surface on the outer edge of the lids (avoiding the Meibomian orifices) touched with the solid nitrate of silver. The scabs cannot accumulate again when the lashes are kept short, secretions are readily removed, any application to the diseased surface is easily made, the risk of distorting or ultimately losing the lashes much diminished, and their future growth improved. The lashes are ready to fall out from the protracted ulceration at their roots, and (when they are not cut off), they are probably pulled out, and Lippitudo is the result;* or by the drying of secretions, and cicatrization of the ulcers about the roots of the lashes, they are forced into abnormal positions, and Trichiasis is the consequence. But another very common cause of inverted or otherwise distorted lashes, after this disease, is, I believe, the forcible and ignorant use of the local applications prescribed. The methods above advocated will be found to facilitate the ordinary treatment, to save the lashes, and to expedite the cure. After the caustic I generally order some simple ointment to be applied, night and morning, to the edge of the lids, and the ulceration is generally found to be inclined to heal.—*Ophthalmic Hospital Reports, Jan.* 1858, *p.* 52.

203.—ON THE TREATMENT OF ACUTE GLAUCOMA.

By J. Critchett, Esq.

The disease I am about to refer to, usually occurs rather past the middle period of life, and in persons of feeble constitution, either originally, or as the result of some debilitating cause. It generally

* The entire hair bulb is casually abstracted, when the scabs are removed; but usually it is left in the hair follicle, with a similar result, inasmuch as, the cure of the disease obliterates the empty orifice.

attacks one eye at a time, and there is frequently a considerable interval between the invasion of the first and second eye. The symptoms come on very suddenly, and proceed with great rapidity. At the onset of the attack the pain is of a most intense character, extending to the brain, and lasting many hours, sometimes two or three days; there are frequent flashings of light, and the sight is rapidly and seriously impaired, and if the disease pursues its course in its worst form, is permanently destroyed. On examining the eye shortly after the onset of the disease, the appearance is very characteristic and peculiar, the pupil is fixed and widely dilated; the humours are dull and muddy, and cannot be fully lighted up by the ophthalmoscope; the surface of the globe is of a bluish red colour; the deeper layers of vessels appearing chiefly injected. The anterior chamber is reduced in size, and the lens seems thrust forward into the pupil. The globe is tender to the touch and of stony hardness. At a subsequent stage, and when all perception of light is gone, these appearances undergo some important changes and modifications which are not quite uniform in their character. At one or more points the sclerotic frequently thins and bulges, the humors become much discoloured, and of a greenish hue, and the lens cataractous. The sclerotic looks thin and of a dark colour, as if the choroid could be seen through it; and upon the surface are seen some large blue distended vessels, showing that the chief onus of returning the blood is thrown upon these superficial veins.

It is to the earlier stages of this disease that I am desirous in this paper of directing attention. It is difficult to localise the precise seat of the inflammatory action at this stage, but it is probably the retina. The distinguishing feature of such cases, that which causes such intense agony, and so rapidly impairs and destroys the sight, is the distension to which the globe is subjected; the perfect balance that subsists in the normal state between the fluids of the eye and their firm inelastic fibrous case is lost, and the latter is placed in a condition of extreme tension by the former; a tension that is constantly increasing until the sclerotic thins and yields to the pressure from within, or until the impetus of the disease exhausts itself. All the ordinary methods of treatment are utterly useless in this disease; the most active antiphlogistic means, such as bleeding, mercury, antimony, &c. exert not the slightest influence in modifying it. I believe all practical ophthalmic surgeons will set their seal to this statement. Nor is this to be wondered at, since the real cause of the acute symptoms is left in full force.

Reflecting on these points, it seems that two indications are especially required; 1st, to relieve the pressure and re-establish the equilibrium between the containing and the contained; and, 2nd, to leave for a time a sort of safety valve to prevent such equilibrium from being again disturbed. With a view of effecting this double object, I have recently performed the following operation. I introduce a broad

needle through the cornea, close to its junction with the sclerotic, and allow the aqueous humour to escape. I then draw out a portion of the iris with a blunt hook, and leave it in the wound; or, if it protrude much, I remove a portion and leave the remainder in the wound. The immediate effect of this operation is to remove the tension of the globe, and relieve the pain; the secondary effect is the gradual and steady improvement of the sight; and, as far as I can at present judge, the remote effect is the removal of the tendency to fresh attacks. The idea of puncturing the globe for the purpose of relieving tension in cases of internal inflammation, is very old. It was suggested and practised by Mr. Wardrop and others, and ever since I have lectured on diseases of the eye, I have advocated the treatment; and in a lecture published in the 'Lancet,' of September 9th, 1854, I related a case in which I put this plan in practice with a very successful result, and urged the treatment in similar cases.

Recently Von Gräfe, of Berlin, has practised a modification of the operation in a large number of cases of acute and chronic glaucoma, his plan being to remove a large piece of iris. The objection to the method of mere puncturation seems to be the rapidity with which the wound heals, and the tendency to relapse into the former condition of tension. And the advantage of drawing out a portion of the iris seems to be to allow time for the adjustment of the normal tension, and perhaps also the establishment of a communication between the anterior and posterior chambers.—*Ophthalmic Hospital Reports, Jan. 1858, p. 58.*

204.—ON THE SURGICAL TREATMENT OF GLAUCOMA.

By Richard Middlemore, Esq., Consulting Surgeon to the Birmingham Eye Infirmary, &c.

[Graefe's operation for relieving the tension of glaucoma involves some risk of aggravating the evils it is intended to relieve, and moreover would not be easily performed except by surgeons having the advantages of the practice afforded by some eye institution. We possess other means of accomplishing the same end, and requiring less delicacy of operation.]

The surgical method in question was first suggested by me, as regards its special mode and principle of action, in my Jacksonian Prize Essay for the year 1831, and was repeated in my 'Treatise on the Diseases of the Eye,' published a few years afterwards, as the following quotation will testify:—"As there is a preternatural fulness of the globe, it may be desirable to puncture the sclerotica; and I should advise that this be done whenever there is much local pain evidently depending on the tension of the globe, and particularly when vision is nearly destroyed, and the opposite organ is becoming similarly affected. A very fine grooved needle passed into the sclerotica, at about three or

four lines behind the margin of the cornea, will enable you to discharge a portion of the vitreous humour very readily, and with infinite relief to the patient. The only other circumstance to which it is necessary for me to direct attention is to pass the grooved needle obliquely backwards; for, unless you adopt this precaution, you may aggravate the patient's sufferings by displacing the lens. In one or two cases of glaucoma, where the muddiness of the vitreous humour has been evidently consequent on the inflammation of the parts which secrete it, I have. on the subsidence of the inflammation of the hyaloid membrane, discharged the greater part of the turbid fluid by means of a fine grooved needle, in the hope that the new secretion would be more transparent; and I am confident that I have more than once practised this operation with the greatest advantage to my patient's vision. This, then, is a mode of viewing the remedial agency of the evacuation of the vitreous humour perfectly distinct from that which contemplates merely the relief of tension of the globe." I have for many years been accustomed to relieve extreme cases of conical cornea by occasionally discharging the aqueous humour by means of a minute puncture of the cornea, and so for the relief of staphyloma at its early stage. and especially that form of it occurring after ulceration of the cornea consequent on neglected purulent ophthalmia.

It will be seen, from the following brief quotation, that the preceding treatment was based on a knowledge of a cause of the dimness of vision it was meant to relieve:—

"The dimness of vision cannot depend on the mere want of transparency in the vitreous humour," in fact, "the retina is compressed by an increase of its quantity."

Now, the effect of puncturing the sclerotica, once, twice, or many times if required, in glaucoma, as practised by me and recommended by me in my writings and lectures for the last twenty years, is so manifestly useful, that I submit it has a claim to attention, which it has never, as would appear from Mr. Hulke's letter, as yet received.

Let me now state the advantages of the method of relief by puncture of the sclerotica.

1. The tension of the globe is relieved and vision thereby improved.

2. A new and clear secretion is formed in the place of a less transparent one.

3. A tendency is communicated to the re-establishment of the normal fulness of the eye-ball; or, in other words, the re-adjustment of the fluid contents of the globe is promoted.—*Med. Times and Gazette, April* 24, 1858, *p.* 424.

205.—*Dilution of Salts Used in the Treatment of Rheumatism.*—[Speaking of the use of lemon-juice in rheumatism, Dr. ALEXANDER remarks]—I have occasionally found very marked and decided benefit from its use; at other times it not only appears inert, but gripes and purges, and has to be at once abandoned. Where it succeeds, I believe its success is attributable to the vegetable salts of potass that it contains, citrates, malates, tartrates, &c., in a high state of dilution. We are in the habit, when we prescribe these salts, of giving them in too concentrated a form. Hence they often fail to be absorbed, and act as purgatives, instead of as renal depurants and alkalies.—*Dr. J. Alexander on Rheumatism and Gout*, 1858.

206.—*Treatment of Epilepsy.* By Dr. SIEVEKING.—The main indications which should guide us in the treatment of epilepsy are—to remove local congestion by counter-irritants, to promote the healthy action of the secernent organs, and to give tone to the constitution by vegetable and metallic roborants. I would express my belief that we possess no specific for epilepsy; the salts of zinc, which have of late been very prominently put forward, frequently fail.—*Medico-Chirurgical Transactions*, 1857, *p.* 164.

206.—*Parasiticides.*—The following is the formula for the "Compound Sulphur Ointment" of the Hospital for the Diseases of the Skin, which is in general use against scabies, favus, and true ringworm, diseases which depend upon parasites, which it is necessary to kill:—℞. Of sublimed sulphur half-a-pound, of the ammonio chloride of mercury half-an-ounce, and of the sulphuret of mercury half-an-ounce; to these well rubbed together add four ounces of olive-oil, sixteen ounces of fresh lard, and twenty minims of creosote. It will be seen that we have here in combination three different drugs, each possessing great efficiency in the destruction of insect and fungus life. The object in view, that of obtaining a vigorous compound, which at the same time shall not be irritating to the skin, is, we believe, exceedingly well attained. Mr. Startin, however, does not in any of these diseases rely only on the local measures. Patients suffering from scabies always take an acidulated saline aperient while using the ointment, and to those suffering from either favus or true ringworm, arsenic or iodide of potassium are usually ordered. In the treatment of ringworm the application of blisters to the patches is always resorted to, with the object of removing at once the cuticle and its infesting cryptogams. Favus is at this hospital acknowledged to be an incurable disease. The scalp may, however, be kept clean by the constant use of the ointment mentioned above, but if it be laid aside even after years of treatment, the disease will to a certainty return. In regard to the diseases attended by parasitic growths, Mr. Startin holds with those dermatologists who consider that the constitution of the

patient must be peculiar in some respects to admit of their attack. That the fungi, in fact, come as mites to cheese, not to all cheese, but to those only which are well kept, and beginning to decay. There is, we cannot help thinking, very weighty evidence in support of the view which holds that these diseases spread by mere accidental contagion, and the fungus once planted will attack the hairs of any child, quite irrespective of the state of health. Should this be admitted, the use of internal remedies, as a general rule, would be rendered superfluous and so indeed, it is, as far as we can ascertain from our own experience. During the last four years in the out-patients'-room of the Metropolitan Free Hospital, the writer has never prescribed any specific constitutional measures in favus, true ring-worm, scabies, or contagious porrigo, relying wholly upon external applications; and he believes with equally good results as those obtained in the practice of the Cutaneous Institution. Not unfrequently in cases of scabies and and porrigo, attended with excess of local irritation, and consequent febrile disturbance (especially in young children), salines and aperients have been ordered, but no cases have occurred in which either arsenic or iodine have been thought necessary.—*Med. Times and Gazette, May* 15, 1858, *p.* 502.

207.—*Treatment of the Syphilides.*—The treatment of the cutaneous forms of syphilis, which form a large part of the practice of the Hospital for Diseases of the Skin, is almost invariably conducted by means both topical and general remedies. Mercury, and the iodides, of course constitute the bases of the formulæ for these affections. For the earliest forms of eruption, the scaly and papular, for instance, calomel and opium in pill are often ordered, but more frequently the bichloride in solution. The following is the prescription for the Mistura Hydrargyri Bichloridi of the Pharmacopœia:—℞. Of the bichloride of mercury two drachms, of strong hydrochloric acid one drachm, of spirits of camphor two drachms, of burnt sugar half a drachm, of water a gallon. The dose is from a drachm to two drachms, each drachm containing a twelfth of a grain of the bichloride. An extemporaneous biniodide of mercury is also much used, the formula for the mixture being as follows:—℞. Of the bichloride of mercury two drachms, of the iodide of potassium six ounces, of the tincture of cardamoms two ounces, and of water a gallon. Of this, the dose, a drachm, contains a tenth of a grain of the bichloride, and two grains of the iodide. Simultaneously with the use of either of these mixtures, Mr. Startin almost always orders the "Red Ointment" to be rubbed into the patches of eruption, or applied to any ulcers which may exist. The formula for this "Unguentum Rubrum," the prime favourite of the Institution is,—of the bisulphuret of mercury half an ounce, of the nitric oxide of mercury half an ounce, of creosote twenty minims, and of fresh lard sixteen ounces.—*Med. Times and Gazette, May* 15, 1858, *p.* 503.

D. I. ROEBUCK, PRINTER, 14, TRINITY STREET, LEEDS.

